NETWORK WORLD
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▶ *MERGER FRACTURE*

Contel seeks escape from COMSAT marriage

COMSAT hints at possibly messy divorce proceedings.

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — Contel Corp. last week told Communications Satellite Corp. it wants to terminate their $2.5 billion merger agreement in light of recent Federal Communications Commission actions that raise questions about COMSAT's long-term financial well-being.

COMSAT was quick to assert that the megamerger, which would have spawned a new company with combined assets of $6.6 billion, was still on and hinted that it may force Contel to make good on its merger proposal. But analysts said Contel has soured on COMSAT and the deal is unlikely to be consummated.

Top executives at Atlanta-based Contel sent a letter to COMSAT officials here last week asking COMSAT to agree to break off the merger proposed last September, according to Contel spokesman Kenneth Bowmar. Contel officials also asked for a meeting with COMSAT's

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FEATURE FOCUS

London's Big Bang: the making of the electronic stock market

BY PETER BYE AND TONY LUNN
Special to Network World

On Oct. 27, 1986, a revolution took place in London. Overnight, the British financial markets shifted from personal trading on the exchange floor to electronic trading from bank offices. Because of its enormity and suddenness, the switch was dubbed "Big Bang" by the financial community.

The preparations for Big Bang placed enormous demands on new communications and information systems, which had to be developed in a short time period for such complex systems. If Big Bang was not to

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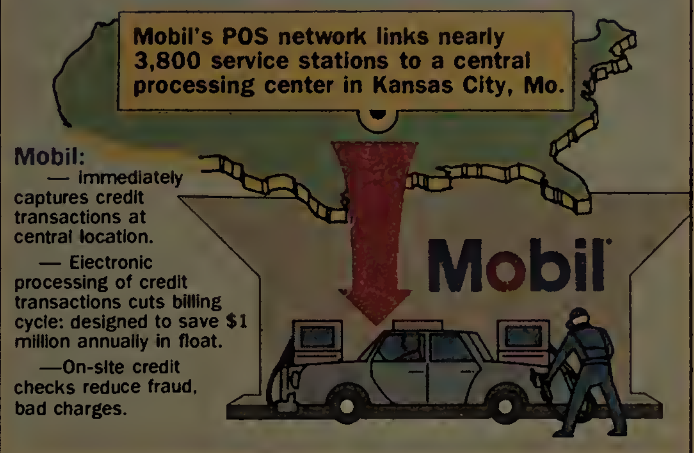
How Mobil benefits from its nationwide point-of-sale network


Mobil's POS network links nearly 3,800 service stations to a central processing center in Kansas City, Mo.
Mobil:
— immediately captures credit transactions at central location.
— Electronic processing of credit transactions cuts billing cycle: designed to save $1 million annually in float.
—On-site credit checks reduce fraud, bad charges.
Mobil

Station managers:
— Offer customers variety of credit card payment options.
— Offer ATM cardholders choice of paying purchases by debiting bank accounts. ATM cardholders pay lower, cash price for gasoline.
— Get immediate credit check on all charges, debit card transactions.
— Avoid manual processing of credit card transactions.

▶ *POINT OF SALE*

Success fuels Mobil POS net

BY JOSH GONZE
Staff Writer

KANSAS CITY, Mo. — Mobil Oil Corp. has improved cash flow, cracked down on credit card abuse and given customers the option of using bank cards as debit cards with its rapidly growing, nationwide network of point-of-sale terminals.

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NETWORK LINE

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▶ US West Network Systems joins the network management crowd with a graphics interface for IBM host-based net control packages. Page 2.

▶ Thanks to heavy cost cutting in 1986, AT&T records a healthy start in '87, while continuing woes for US Sprint spell first-quarter profit dips for parent firms GTE and United Telecommunications. Page 2.

▶ Users with heterogenous nets will be able to exchange electronic mail messages using a new version of Consumers Software's Network Courier. Page 2.

▶ AT&T's General Business Systems division readies two option-laden key systems, including an enriched version of its Merlin system. Page 3.

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▶ Of the many available leased-line alternatives for transmitting data, digital microwave is the best choice for short-haul applications in inclement weather. Page 31.

▶ *MULTIVENDOR NETWORKS*

IBM aids Renault's OSI plan

BY PAUL KORZENIOWSKI
Senior Editor

LYONS, France — In a move that demonstrates its commitment to international standards, IBM is working closely with a major French company here to develop gateways to link IBM hosts and Digital Equipment Corp. VAX processors in a peer-to-peer fashion using Open Systems Interconnect (OSI) protocols.

Jean Louis Pimont, network manager at Renault Vehicules Industriels, said IBM, Renault and Marben Informatique, a French software company, are designing gateways that translate application-level OSI protocols to comparable IBM Systems Network Architecture protocols,

See **IBM** page 8

▶ *DISASTER RECOVERY*

PacBell switch bites bullet

Gunman causes $10m damage, service outages.

BY MARY PETROSKY
West Coast Correspondent

RIVERSIDE, Calif. — Communications managers here got a chance to test their disaster recovery plans last week after a disgruntled former Pacific Bell employee pumped 200 shotgun rounds into critical central office equipment, causing an estimated $10 million in damage.

According to police, the gunman entered a switching office here before 3 a.m. on Monday, armed with a shotgun and a pistol, and took hostage four Pacific Bell employees and an unarmed security guard. The man, identified as Tony Apodaca, 47, then began blasting away at the switch. Apodaca released one hostage, and four others escaped, before he surrendered to

See **PacBell** page 8

▶ *LONG-TERM PRICING*

AT&T to offer fixed SDN, Megacom rates

BY KARYL SCOTT
Washington, D.C. Correspondent

WASHINGTON, D.C. — AT&T recently proposed a rate stability plan to the FCC under which the company would offer Software-Defined Network (SDN) and Megacom customers three- to five-year fixed-rate contracts beginning May 23.

In addition to helping communications managers fix costs, the long-term contracts are expected to help increase use of the two relatively new services. AT&T estimated the rate stability plan will improve net earnings for Megacom and SDN by $4.2 million in 1987.

"Price predictability will enable customers to more accurately forecast, budget and manage their telecommunications expenses," according to AT&T's filing with the FCC. "Moreover, with the assurance of predictable prices, customers will be more willing to make the substantial commitment in time and expense required to make efficient use of SDN and Megacom."

Rate stability plans have become widespread in the competitive postdivestiture telecommunications market, according to AT&T District Manager James Stokes. AT&T's decision to offer contractual pricing was a direct result of user demand, he said.

In addition, AT&T has greater control over underlying SDN and Megacom costs because they are not subject to access-charge fluctuations. The costs of switched access used by SDN and Megacom are not included in the tariff rates. The access charges are passed directly to the end user, Stokes said.

Under terms of the plan, customers will be able to obtain SDN and Megacom at today's rates if they agree to use a fixed volume of one or both services over the term of a three- or five-year contract.

If the rates fall below current levels, the contract rates will be adjusted to reflect the new, lower rates, according to AT&T spokesman Ralph Dobriner. Customers will, however, be insulated from future rate increases, meaning customers will only save money if rates go up in the next three to five years.

See **AT&T** page 5

▶ *NETWORK MANAGEMENT*

US West to unveil net control aid

Analysts question system's usefulness.

BY PAUL KORZENIOWSKI
Senior Editor

SEATTLE — US West Network Systems is expected to step into the network management ring tomorrow with the introduction of a sleek graphics product for IBM host packages, but analysts question the company's ability to compete successfully in the growing market.

US West plans to announce Graphics Network Monitor, a host-based software package designed to provide a graphic user interface to host network management systems. US West refused to comment on the upcoming announcement.

The interface, which can be used with IBM's NetView and Cin-

See **US West** page 5

Correction: A recent article regarding enhancements to Perception Technology Corp.'s Vocom line ("Vocom family enhancements announced," *NW*, March 23) gave inaccurate prices. The enhancements' prices depend on system size and complexity. Installation is free to users and will be reflected in new customers' system quotations.

▶ *FINANCIAL PICTURE*

AT&T, US Sprint post mixed results

BY KARYL SCOTT
AND PAM POWERS
Network World

First-quarter financial reports released last week by AT&T and US Sprint Communications Co. contained good news and bad news for the long-distance carriers.

At the company's annual meeting in Jacksonville, Fla., AT&T Chairman James E. Olson told shareholders that first-quarter earnings rose 26% over the similar period last year, even though revenue dipped nearly 7% from first-quarter 1986. The good news about profits was tempered by the fact that the 1987 increase stemmed from an earlier accounting change that lowered actual first-quarter 1986 earnings. AT&T's financial report also showed that sales of computers and telephone equipment fell significantly.

Separately, despite a healthy 30% increase in revenue for the quarter, US Sprint reported a loss of $242 million that took its toll on the profits of parent companies United Telecommunications, Inc. and GTE Corp., both of which reported lower first-quarter earnings.

MCI Communications Corp., the third member of the long-distance leadership troika, would not comment on its performance prior to the issuance of its quarterly report, which is expected to be released today.

AT&T scorecard

AT&T's first-quarter earnings were $445 million, or 40 cents per share, up from last year's restated first-quarter operating profits of $354 million, or 31 cents a share. Actual first-quarter 1986 operating profit was $529 million, or 47

See **Results** page 6

▶ *CONSUMERS SOFTWARE*

Internet E-mail debuts

Lets users build multi-LAN mail net.

BY PAULA MUSICH
Senior Editor

SANTA CRUZ, Calif. — Electronic mail purveyor Consumers Software, Inc. plans to release an internetwork version of its Network Courier this week that will enable customers to build a homogeneous mail system for geographically dispersed, heterogeneous local networks, *Network World* has learned.

Internetwork Courier is a program that allows users on different Network Basic I/O System-compatible local networks to exchange electronic messages over asynchronous dial-up links at 300, 1,200, 4.8K or 18K bit/sec.

The program uses the same pop-up windowing facility found in the Network Courier, the company's E-mail program that enables users to send and read messages without having to exit the applications they are working in.

Beta users of the Internetwork Courier reacted favorably to the program, and one early user has already moved it into a production environment. Others, however, said they would like to see some refinements, including the ability to manage storage of messages more easily and less complex installation procedures.

Beta user Jeff Sorensen, manager of end-user computing for the state of South Dakota, tested the program between two IBM Token-Ring Networks in separate buildings and an AT&T Starlan net-

See **Internet** page 35

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NEW PRODUCTS AND SERVICES

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TELECOM SYSTEMS

AT&T to unwrap two digital units

Under 25-line mart is targeted.

BY BOB WALLACE
Senior Editor

NEW YORK — In a move engineered to provide current small-system users with feature-rich alternatives to existing analog telephone systems, AT&T is expected to introduce tomorrow a pair of digital telecommunications systems targeted at the under 25-line market, *Network World* has learned.

AT&T would not comment on the capabilities of the two new systems, which will be among a group of products slated to be introduced by Gus Blanchard, group vice-president of AT&T's General Business Systems (GBS) division, at AT&T's corporate headquarters here.

The products to be announced include the Merlin Plus, a feature-rich version of the current Merlin key system, that is capable of handling eight lines and as many as 20 stations. Also set to debut is the Spirit, a modular telephone system that can support a maximum of six lines and 16 stations.

AT&T sources say the two units will be able to support digital telephone sets used with its larger digital private branch exchanges.

The GBS product announcements come on the heels of AT&T's introduction of the System 75XE, a new mid-range digital PBX specifically targeted at the under 250-line segment of the PBX market. The switch can support up to 600 stations ("AT&T, Northern Tel to address low end," *NW*, April 6).

Sources within AT&T who requested anonymity explained that the Spirit will be available in a three-line, eight-station base model. Through use of an expansion module, it can be configured to serve a maximum of 16 stations.

The source said the Spirit will support digital telephone sets. The system will also be equipped with built-in speakerphone equipment.

Many of the current Merlin system features will be available with the Spirit. These calling capabilities include memory dialing, conference calling and call transfer.

AT&T already offers three analog versions of the Merlin: the Merlin 206, which supports two lines and six stations; the Merlin 410, which handles four lines and 10 stations; and the Merlin 820, which supports eight lines and 20 stations. AT&T also offers the EKTS-2600, a system designed to handle two lines and up to six stations.

Loaded with features

According to the AT&T source, the Merlin Plus will be feature-laden, obviating the need for prospective users to purchase optional features. Standard features are expected to include Station Message Detail Recording, memory dialing, on-hook dialing, call transfer and answer/reanswer for intercom applications.

The Merlin Plus will likely cost less than an earlier, comparably equipped Merlin model, sources predicted. Both key systems will be installed, maintained and serviced by GBS' field support force (see graphic on page 11).

AT&T, the leader in the under 50-line key system market, will be looking to increase its lead over Tie/communications, Inc., AT&T's closest competitor in the hotly contested small systems arena.

TEXAS TEAM-UP

AT&T free reign blocked

BY BOB WALLACE
Senior Editor

AUSTIN, Texas — The Texas state senate recently passed an amended version of a bill once backed by AT&T that was intended to free the carrier from intrastate service pricing constraint, but which now may end up backfiring on the long-distance giant.

The original bill was designed to allow AT&T to change service rates and launch new services without prior approval from the Texas Public Utilities Commission (PUC). A coalition of small long-distance carriers, however, convinced lawmakers to gut the bill, which, if passed by the Texas House of Representatives, will only allow AT&T to lower rates without PUC approval.

These strictures are more binding than PUC rules originally set to go into effect July 1, which would have allowed AT&T to raise or drop tariffs at fixed rates for three classes of services over a two-year period.

Under the PUC regulations, AT&T would have been able to raise or lower Message Toll Service rates by 2.5% in the first year and 5% in the second year. WATS rates could have been altered 8% in the first year and 10% in the second, and AT&T digital private-line rates could have been changed 10% in the first year and 20% in the second.

An AT&T spokesman said the carrier had spent $2 million to $3 million fighting regulatory wars in the Lone Star State since 1983 and maintained that Texas is one of just a handful of states in which it is the only regulated intrastate long-distance carrier.

The original bill, introduced by Texas State Sen. John Montford, promised to allow AT&T to change rates and introduce new services without the risk of being drawn into time-consuming and costly PUC hearings and rate cases by competitors.

If any of AT&T's competitors files an objection to AT&T's plans, the PUC must investigate the action to determine if the carrier is acting in an anticompetitive or monopolistic manner.

AT&T said it will attempt to have the amendment dropped from the bill, which will soon be sent to the State House of Representatives. The Senate passed the controversial amendment under two separate 16-15 votes.

Tom Jones, vice-president of government relations for AT&T's Southwest Region, said one or more of its 158 competitor carriers in Texas would challenge every move AT&T makes in Texas. "There is no doubt in our minds that we are going to be challenged by our competitors regarding anything we do. At the Senate, the first two rows of people are our competitors," he said.

Philip Diehl, director of telephone regulation for the PUC, predicted hard times for many of the state's 65 to 70 intrastate, long-distance service providers if AT&T succeeds in removing the disputed amendment from the bill.

"AT&T already receives 68% to 75% of all revenue derived from intrastate long-distance service in Texas. MCI Communications Corp., US Sprint Communications Co. and Metromedia Long Distance account for 27% of the revenues, and the remaining 5% is distributed among 61 to 66 smaller carriers," Diehl explained.

AT&T's Jones said of the future of the controversial bill, "We would like to see the Senate bill changed, have the one regressive amendment removed and move the bill through the House and back to the Senate for concurrence."

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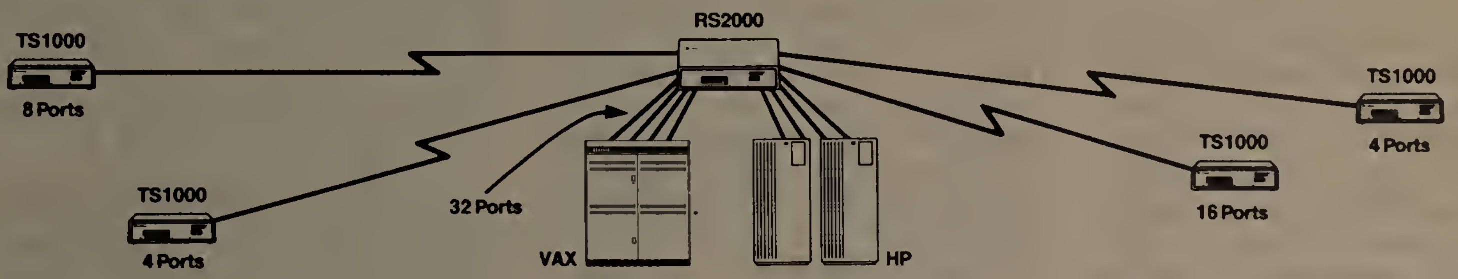

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MANAGEMENT

MCI calls back Wright

Former president in for ill McGowan.

BY PAM POWERS
Senior Editor

WASHINGTON, D.C. — MCI Communications Corp. last week called back former President and Chief Operating Officer Orville Wright to assume the post of chief executive officer in Chairman William McGowan's absence, citing a longer than anticipated recovery for McGowan, who suffered a heart attack in December.

Wright, who has served as vice-chairman of the company since his retirement in 1985, assumed the post of CEO at the behest of MCI's board of directors. McGowan had requested Wright's appointment in order to provide "strategic direction" in the company, an MCI spokesman said.

"The board has taken action in order to relieve McGowan of the stress of involvement with the company," the spokesman added.

Chief Operating Officer Bert Roberts has presided over MCI in McGowan's absence. Roberts told *Network World* in an earlier interview that, with the aid of a management committee, he oversees the day-to-day operations of MCI and "periodically looks at the strategic direction" of the long-distance carrier.

Roberts said the management committee was in regular contact with McGowan.

Michael Kennedy, a vice-president with Stamford, Conn.-based Gartner Securities Corp., said MCI structured operations so that Roberts and the management team were responsible for the operational aspects of the communications concern, but McGowan alone provided the necessary "creative genius" for strategic direction.

Still lean and mean

"You can look at MCI and see that it runs well in terms of daily operations," Kennedy said.

"It is still a lean, mean company. But it has a problem on the creative side; no one is developing revenue-generating plans," he said, adding that it is for this reason that Wright assumed the position of CEO.

The MCI spokesman said Roberts will continue to oversee the company's daily operations as before. He would not comment, however, on when McGowan is expected to return.

Mobil POS net speeds billing

continued from page 1

Mobil, the fifth largest company in the U.S., has installed POS terminals in nearly 3,800 service stations that process both credit card and debit card transactions.

In parts of the country, customers can use their automated teller machine cards to have payments withdrawn automatically from their bank accounts.

The POS network feeds credit card purchase information instantly to a central processing center, allowing Mobil to bill customers on an up-to-the-minute basis and cut costly float time, the period between a charge transaction and when Mobil actually receives payment. The network also lets service station managers perform on-site credit checks, identifying customers with unpaid accounts and curtailing use of stolen cards.

The POS net has worked so well for Mobil that the company plans to increase the number of stations tied to the network to 4,500 by the end of 1988. "Someday we may have a terminal in every service station. That's the ultimate goal," said Jim Neuenberger, telecommunications coordinator in the department of marketing management sciences at Mobil. According to Neuenberger, there are between 13,000 and 14,000 outlets that sell Mobil gasoline.

> The network also lets service station managers perform on-site credit checks, identifying customers with unpaid accounts or stolen cards.

Neuenberger said that because core network equipment is already installed, Mobil can add new sites for only the cost of a terminal and attached peripherals. The network becomes more efficient as more transactions run on it, in contrast with third-party networks that charge more for each additional transaction.

Mobil has already spent some $30 million on the network, which carries about seven million transactions each month from service stations to Mobil's credit card processing center here. Neuenberger said the POS net was originally intended to save Mobil $1 million annually in float, but he would not comment on what savings the company has actually realized.

Service stations are linked via multidrop lines to 13 multiplexer sites throughout the U.S. The 280 1,200 bit/sec multidrop lines, using a poll-and-select protocol, support an average of 12 terminals. The multiplexer sites are, in turn, linked to the processing center here through 38 9.6K bit/sec synchronous circuits leased from AT&T.

The number of private lines emanating from an individual multiplexer site varies according to the number of service stations in the area. All 38 lines, which support a modified version of the High Level Data Link Control protocol, have dial back-up.

Each station is equipped with an AFI Datatrol 3205 asynchronous terminal with an attached magnetic strip reader, a printer for customer receipts and a personal identification number pad for entering debit card passwords. Mobil worked in conjunction with AFI Datatrol to develop terminals suitable for the network.

Codex Corp. 1,200 bit/sec Model 2002 modems are used with the multipoint lines, and its 9.6K bit/sec CS96 Fast Poll modems are used with point-to-point lines. Multiplexer sites are equipped with Codex Model 6001, 6002 and 6003 multiplexers. Codex also provided IMS 4803 matrix switches used at each of the 13 multiplexer sites and at the processing center to switch in spare equipment in the event of a failure.

The central credit card center uses 10 Tandem Computers, Inc. NonStop TXP CPUs to process transactions.

Neuenberger said Mobil has entered into agreements with ATM network operators on the West Coast and in New York and the Northeast that let ATM cardholders from participating banks use the cards to pay for purchases directly from their bank accounts.

When a debit card is used, the processing center issues a request for authorization to the institution that issued the card. Once the transaction is approved, the purchase amount is automatically transferred from the customer's bank account to a Mobil account. Customers are offered the cash price on gasoline when paying with a debit card, 4 cents less than the credit price.

In addition to debit cards and Mobil's own charge cards, the terminals can process transactions using other major credit cards including Visa, MasterCard, American Express and Discover.

> The network becomes more efficient as more transactions run on it, in contrast with third-party networks that charge more for each transaction.

Neuenberger said the greatest benefit the POS net offers is up-to-the-minute billing. With the old system of paper credit card receipts, Mobil had to absorb the cost of sales during float times.

Before the network was installed, gasoline purchased by a customer as many as 10 days before the end of a billing cycle might not appear on his account statement until the end of the following billing cycle, almost six weeks later. Now customers are billed for purchases made up to the minute the bill is generated.

The POS network has also cut fraud and credit card abuse. The processing center here compares card numbers against a master file of cards reported lost or stolen and of overdrawn account numbers. If the processor finds a match, it sends an illegal card message to the terminal's screen so the station attendant knows not to service the customer.

Although Mobil was concerned about how customers would react to billing cycle changes, Neuenberger said customer feedback has been positive.

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LOCAL NETS

Apollo opens Domain to support Ethernet

BY PAULA MUSICH
Senior Editor

CHELMSFORD, Mass. — Technical workstation vendor Apollo Computer, Inc. last week opened up its Domain networking architecture to support a variety of industry-standard transport networks, the first of which will be Ethernet.

When asked if Ethernet is the transport network of choice in many engineering applications, Michael Gallup, director of product marketing for Apollo, agreed. "People have said, 'I'd like to buy your workstations, but we're standardized on Ethernet, and I can't run a token-ring cable through the same duct to support your workstations,' " he said.

Competitor Sun Microsystems, Inc. offers a network for its workstations based on Ethernet.

"We didn't put hooks in Domain so that it could just talk to Ethernet," said Dave McCrabb, senior product manager for Domain Networking at Apollo. "We made some architectural changes so that we could move Domain not only to Ethernet, but to other networks, such as 802.5 and 802.4, as they become popular in our markets."

Apollo manufactures graphics-oriented 32-bit workstations, including the Series 3000 Personal Workstation line and the high-end DN500 series, used in applications such as computer-aided design and engineering.

Domain, originally based on a proprietary 12M bit/sec token-ring network, provides Apollo workstations with a variety of network services.

They include a networkwide file system that allows users to read but not manipulate opened files; resource sharing of networked CPUs, peripherals and communications gateways; and a demand-paged virtual memory mechanism for sharing portions of a file without having to copy and transfer whole files, disk-to-disk, across a network.

The restructured Domain architecture is backwardly compatible with existing Domain networks. "No matter where it moves, Domain is functionally the same to the user," McCrabb said.

This transparency is maintained in bridging between Apollo token-ring and Ethernet networks. An Ethernet and token-ring adapter card can be installed in an Apollo workstation to create this bridge without additional software.

Ethernet support will initially be extended to the firm's Series 3000 Personal Workstations through an intelligent IEEE 802.3 adapter card, the 802.3 Network Controller-AT. Ethernet adapters for the DN500 workstations will be available by year end. And new workstations, which will be announced shortly, will also be supported.

The new adapter board is installed in one of the IBM Personal Computer AT-compatible expansion slots on the 3000 workstation. The adapter includes an Intel Corp. 80186 microprocessor, 82586 local-area network coprocessor and an on-board transceiver for a thin Ethernet connection through a BNC-type T-connector. The board supports a connection to external transceivers for attachment to thick Ethernet cabling.

Like the token-ring adapter, Apollo will bundle the cost of Ethernet into the price of its workstations. "Users will be given a choice of the two technologies, with no difference in price, support, service or functionality," McCrabb said.

The Ethernet adapter will also be available as an add-on board if users want to gateway between the Apollo token ring and Ethernet. List price for each board separately is $2,000.

Workstations that are equipped with Ethernet adapters and individual adapters will be available in June.

AT&T to offer fixed rates

continued from page 2

The volume of usage for which customers contract must be maintained within 25% of the original volume specified in a contract. For example, if a customer agrees to use 125 million minutes of use for three years, but ends up using 100 or 150 million minutes, he will not be penalized.

Customers that exceed the 25% margin will not be guaranteed stabilized rates. Others that fall short of the contractual volume will pay an added surcharge of three cents per minute for each minute below 100 million.

Customers who exceed the margin can cancel contracts before they expire: before service begins; once they have signed a contract for a higher volume of use; if they reach a volume limit before the contract has expired; or if stabilized rates are increased without customer consent.

First plan designed for DOD

AT&T first began offering fixed rate contracts three years ago. The first rate stability plan was designed for the Department of Defense's Commercial Telecommunications service.

AT&T has since extended the plan for several Skynet satellite services and Accunet T1.5, as well as Enhanced Private Switched Communications Service. US Sprint Communications Co., Fibernet, LDX NET, Inc. and Lightnet, Inc. also offer long-term fixed-rate contracts.

US West unveils net package

continued from page 2

com Systems, Inc.'s Netmaster, includes items such as pull-down menus and icon-driven commands that make the software packages easier to use. Graphics Network Monitor can graphically represent a network and, through the use of color, show the network's present condition as determined by the host-based network management system, according to analysts who have seen the product. This graphic output, called a map, can be displayed on an IBM terminal or Personal Computer.

Menu-driven screens could help users move from the map into network management packages, such as IBM's Network Problem Determination Application. Current mainframe network management packages, such as NetView, have limited graphics capabilities, and users could benefit from a graphic interface, analysts agreed.

However, graphics alone may not be enough to convince users to purchase the product. Rudolf Strobl, senior consultant at Arthur D. Little, Inc., a Cambridge, Mass., consulting firm, said users deem enhanced graphics merely an add-on feature, rather than a stand-alone net management package. Although they aid users of mainframe-based net management systems, graphics interfaces are already part of other network management systems.

The product introduction will not differentiate US West from established network management suppliers, according to analysts. Kathryn Korostoff, an analyst at International Data Corp., a Framingham, Mass., market research firm, said other vendors, such as Racal-Milgo, Inc. and Paradyne Corp., already include sleek graphic interfaces as part of their network management systems.

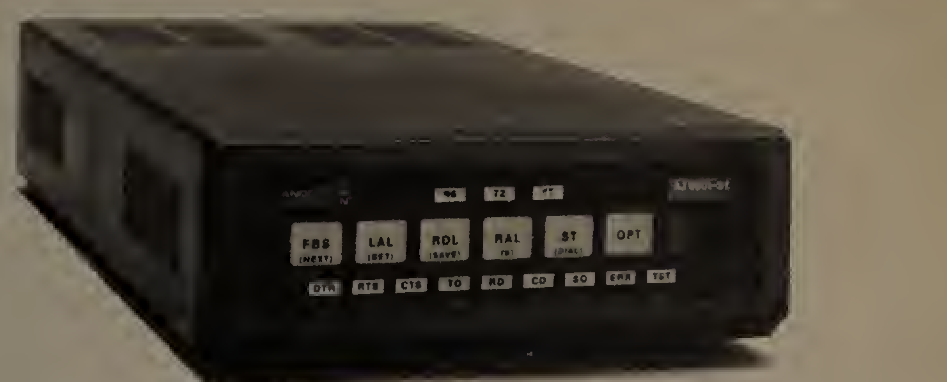
Strobl said IBM could easily enhance NetView's interface to mirror the US West package. "IBM is concentrating on the important network management issue, integrating network management information from other vendors' equipment," he said. "After that problem has been addressed, the company could improve the user interfaces for its products."

US West is focusing on the wrong issues because it does not understand the network management market, according to Strobl. "US West ignored basic marketing issues in developing this product, and the introduction is being conducted in a haphazard manner," he said. The product's introduction was postponed twice, first in January and again last month. Strobl said the company had little user input in designing the product, which has not yet been shipped to a beta site.

The Graphics Display Monitor may be only the tip of US West's network management iceberg. Network management is one market that the seven regional Bell holding companies are expected to attack aggressively. Pacific Telesis Group already offers a network management service through PacTel Spectrum Services, and Ameritech and Nynex Corp. are currently determining how to enter the market.

Analysts report that US West has grandiose plans for the network management market. The company reportedly has more than 80 employees working on network management products and is already setting up a large direct sales staff dedicated to selling network management packages.

Despite its deep coffers, US West may have difficulty establishing itself as a leading network management vendor. Korostoff noted the company has little experience selling data communications equipment and could face problems similar to those AT&T experienced when it began selling computers.



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▶ *ACCESS CHARGES*

FCC approves $1.50 line charge increase

WASHINGTON, D.C. — In an attempt to move the nation closer to cost-based telephone service and away from "uneconomic" bypass, the Federal Communications Commission last week approved an increase from $2 to $3.50 in monthly subscriber line charges for one-line businesses and private residences.

The increased subscriber line charges can be expected to reduce the cost of long-distance calling by further reducing the subsidies long-distance carriers pay to local service providers.

The FCC took aim at bypass by giving local telephone companies permission to set non-traffic-sensitive flat-rate tariffs in accordance with the cost of providing service. That means telephone companies that operate at lower costs will be able to charge local customers less.

The FCC took aim at bypass by giving local telcos permission to set non-traffic-sensitive flat-rate tariffs in accordance with the cost of providing service.

Bowing to pressure from Congress, the FCC delayed implementing two of the three phases of the rate increases leading to the higher rates.

The first 60-cent increase will now become effective on July 1, instead of June 1 of this year. The second increase, also 60 cents, will be implemented three months later than planned, on Dec. 1.

The final 30-cent increment will take effect, as planned, on April 1, 1989.

Rep. Edward Markey (D-Mass.) chairman of the House telecommunications subcommittee, led congressional opposition to the rate hike. His talks with FCC Chairman Mark Fowler earlier in the week are believed to have brought about the compromise.

The FCC said its action would produce "significant, tangible benefits" for large and small telecommunications customers. More specifically, it estimated the change would produce a 15% reduction in long-distance rates over the coming six years.

The changes came in reaction to recommendations made by a board of federal and state regulators.

AT&T, Sprint post results

continued from page 2

cents a share, reduced by $175 million, or 16 cents a share, due to an accounting change.

"These results are better than expected," Olson told shareholders. "A major reason for the improvement is that we gained the benefit of cost reductions begun last year more quickly than anticipated. I find this encouraging as I look ahead."

Olson's message to shareholders was somewhat bittersweet because the gains achieved by AT&T's extraordinary cost-cutting efforts in 1986, including massive layoffs, cannot be duplicated every year. Analysts also said that AT&T did not exhibit any real revenue growth, improved sales or increased market share.

Glenn Powers, a senior analyst with Northern Business Information, Inc. of New York, said, "Long-distance revenue is off, and equipment sales didn't do well at all. It's even questionable if the cost cutting was effective. The goal is to reduce costs without having negative revenue impact. That didn't happen."

Declining revenue

Revenue for the first quarter declined to $8.12 billion from $8.71 billion last year. Revenue from long-distance service slipped to $4.59 billion from $4.69 billion a year earlier, due in large part to Federal Communications Commission-mandated price cuts.

Revenue from computer and telephone equipment sales dropped to $2.48 billion from $2.71 billion in 1986. Rental revenue was down $300 million, to $1.04 billion.

"The long-term outlook for AT&T's long-distance business is positive," Powers said. "There's lots of elasticity in that market, and AT&T has control. For CPE, computers and central office gear, it's not very good. AT&T doesn't have the power to stimulate demand for CPE. The central office market is experiencing decreased demand, and there's not much AT&T can do about it."

While Olson admitted AT&T was having problems in the computer market, he denied claims that AT&T may retreat there. "We're continuing to forge ahead in incorporating our data networking strategy to advance our position in the information processing industry," he said.

US Sprint roundup

Although US Sprint's revenue increased a healthy 30% to $615 million in the first quarter, compared with the similar period last year, the carrier suffered a $242 million pretax loss for the quarter. The loss is more than four times the shortfall US Sprint reported in the first quarter last year.

As a result, GTE's first-quarter profits dipped 6% to $265 million from last year's $283 million. Revenue was up 4% to $3.7 billion, compared with $3.5 billion in 1986. United Telecom posted a hefty first-quarter drop in earnings, which fell some 70% from $46.4 million last year to $13.5 million this year. Revenue increased from $559 million to $573 million for the quarter that ended March 31.

A GTE spokesman attributed Sprint's continuing losses to the high cost — $300 million annually — of leasing network facilities from AT&T to support traffic until the carrier has completed construction of its 23,000-mile fiber-optic net.

The company projects US Sprint's losses will begin to diminish in the second half of 1987, as the company migrates its customer base onto the new network.

"That will save us the high costs of leasing lines from AT&T and will eliminate the costs associated with building the fiber-optic network," the spokesman said.

US Sprint estimated it will have spent a total of $2 billion building the nationwide network.

Migration ahead of schedule

United Telecom President William W. Esrey said the migration of customer traffic to the fiber network is proceeding ahead of schedule.

He echoed GTE's contention that transition to company-owned network facilities would result in diminished expenses for the second half of 1987.

Despite the widening losses sustained by the carrier, analysts applauded US Sprint's 30% revenue growth in the first quarter.

A GTE spokesman attributed Sprint's continuing losses to the high cost of leasing network facilities from AT&T to support traffic until the carrier has completed its fiber net.

"The company has been much more competitive than people expected," noted Michael Howe, director of research for Philadelphia-based Butcher and Singer, Inc. "I think its prospects are very promising."

However, Howe said he expects US Sprint to bear greater cost pressures in the second half of 1987 than it has thus far.

"US Sprint has marketing costs and accelerated depreciation costs that will swell its cost structure even more this year," he explained.

Geoff Johnson, a telecommunications analyst with New York-based Argus Research, echoed Howe's opinions. "I don't expect US Sprint to attain profitability until the second half of 1988," he projected. "But their annual revenue growth is much better than I anticipated. It surpasses revenue growth for AT&T and MCI. The key is to gain market share, and US Sprint is obviously doing that," he said.

▶ *PRICE PROBE*

Mass. set to chop NE Tel. rates

BY JOSH GONZE
Staff Writer

BOSTON — New England Telephone's rate structure came under scrutiny after the Massachusetts attorney general asked state regulators to impose at least a 10% rate cut and force the carrier to refund any excess profits to customers.

In a filing with the state's Department of Public Utilities (DPU) two weeks ago, Attorney General James Shannon said New England Telephone's rates are too high, even though they have not been raised in six years. Shannon asked that rates be cut by at least $150 million, or 10%.

Shannon and other critics of the Bell operating company say the new tax law and lower capital costs have significantly reduced New England Telephone's operating costs and have led to excess profits.

A New England Telephone spokesman admitted tax law changes will reduce the BOC's costs by about $50 million per year. But the company's overall financial situation does not support the charge of excess profits, he said. "The data we filed with the DPU points out that we actually have a $75 million shortfall," said spokesman Mark Marchand. "We feel that we provide quality service for a fair and equitable price."

The company is currently allowed a rate of return — its profit margin — of 15%, and that is drawing intense criticism from some large corporate users.

The Business Telecommunications Users Group, an ad hoc group claiming to represent all Massachusetts banks, formed recently to push for a lower rate of return and lower service rates. Members of the group contended that no other Massachusetts utility is allowed such a high profit margin.

"Times have changed drastically since 1981," said Harold Keohane, counsel for the users group. He pointed out that, due to changes in federal tax laws, the corporate tax rate will fall on July 1 from 48% to "the area of 34%," but New England Telephone's rates are based on the higher tax level.

The Massachusetts case is similar to regulatory battles taking place in other states.

Even New England Telephone acknowledges that changes are likely to result. "We believe it will result in some rate restructuring," New England Telephone's Marchand said.

The chairman of the Massachusetts DPU, Paul Levy, called the case the most important ever undertaken by the agency. Marchand agreed, saying, "It is a landmark rate proceeding."

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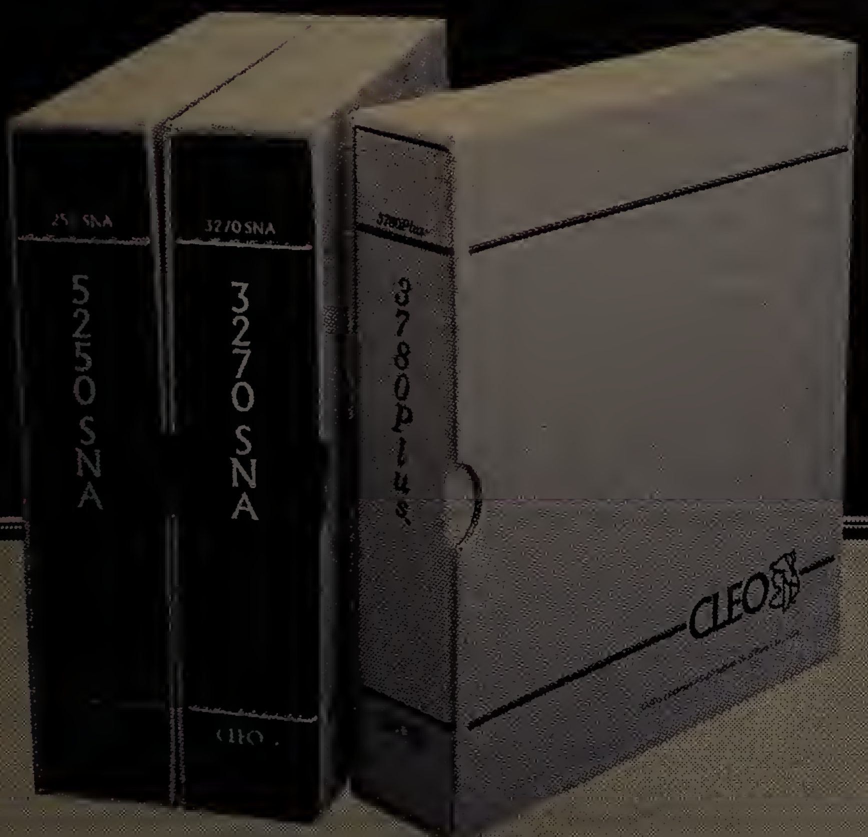

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Switch bites bullet

continued from page 1

police around 8 a.m. He reportedly told police he was upset about "benefits of his retirement system." Apodaca was charged with assault with a deadly weapon, false imprisonment, burglary and one felony count for damaging equipment.

Approximately 15,000 Pacific Bell customers in the Riverside area lost telephone service, according to a Pacific Bell spokesman. Pacific Bell employees, working around the clock, restored service within just 22 hours, using replacement parts dispatched from facilities throughout the region to revive the damaged crossbar central office switch, an older type of electromechanical switch.

The company had originally estimated it would take three to four days to repair the damage.

Pacific Bell estimated the cost of the restoration, including replacement of the switch, will reach $10 million.

Richard Teague, a division manager who oversaw the restoral, said the replacement switch will be operational in two weeks. He said such an installation normally takes more than four months.

Communications managers in the area said they were inconvenienced, but their operations were not completely disrupted by the switch outage.

Most got around the problem by using lines that were still in service from other central offices.

"We have quite a few different circuits we can use," said Buck Edmondson, director of data processing for Alfred M. Lewis, Inc., a grocery distribution firm. The additional circuits allowed the company to quickly restore a 24-hour computerized ordering service it provides for customers.

However, customers first had to call to receive the temporary ordering number, using an in-service line from another central office facility.

In a worst-case scenario, Edmondson said, orders could be routed to a sister distribution center, batched and transmitted to the Riverside site.

Electronics component-maker Bourns, Inc. had no disruption of data service, nor did it lose voice service completely, said John Zavada, director of communications. "We have extra lines that go through other central offices," Zavada said.

The key problem was that the company couldn't receive incoming calls or make local calls, though employees could dial out for long-distance calls, Zavada said.

Like Alfred Lewis' customers, Bourns' customers could not call in to place orders. The company got around the problem by calling distributors, informing them of the downed lines and then contacting them periodically during the rest of the day, Zavada said.

Zavada praised Pacific Bell for the way it handled the emergency. "They kept us informed every step of the way," he said. ◪

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▶ *ETHERNET BRIDGE*

DEC microwave link ties LANs

BY JIM BROWN
New Products Editor

NASHUA, N.H. — Digital Equipment Corp. and M/A-Com, Inc. are teaming up to offer a microwave-based system to bridge remote Ethernet local networks, DEC announced here last week.

Using a 23-GHz microwave radio and DEC's LAN Bridge 100, the Metrowave bridge will link Ethernet segments over a distance of up to 4½ miles, enabling users to build metropolitan or campuswide networks.

The system will support local nets that support protocols compliant with Ethernet Version 2.0, including DEC's DECnet, Xerox Corp.'s Xerox Network Systems and the Transmission Control Protocol/Internet Protocol, at Ethernet speeds of 10M bit/sec.

The Metrowave radio component interfaces with the LAN Bridge 100, which is designed to link individual Ethernet segments using terrestrial lines. The intelligent LAN Bridge 100 only forwards Ethernet packets destined for remote devices.

The system also features a dynamic learning capability that detects and adjusts to network changes, so that when computers are moved from one net segment to another, the bridge automatically adjusts.

Expected to ship in May, the Metrowave bridge system will cost $28,000. Under a joint marketing pact, M/A-Com will supply the microwave radio equipment, including the transmitter and receiver controller. M/A-Com will also supply the microwave radio frequency unit, antenna, and signal and power cables. DEC will supply the LAN Bridge 100.

System bows

DEC also introduced last week its MicroVAX II-based DECtalk Voice Response System, which allows callers to access computer-resident data using a telephone key pad. The system will retrieve the data and, using DEC's DECtalk voice synthesizer, read the digitized data to the caller.

Included with the system is a DECtalk Application Development Guide, which allows users to develop applications for the system.

The DECtalk Voice Response System starts at $40,000. It supports up to 32 channels and comes with 5M bytes of main memory, a 71M byte Winchester hard disk, a cartridge streaming tape drive and a video terminal. ◪

IBM aids OSI plan

continued from page 1

such as LU 6.2. The gateways, which may be completed by the end of the year, could dramatically improve Renault's ability to link IBM equipment to the company's OSI-based net.

Like a number of European companies, Renault is striving to use standard OSI protocols where possible to link different processors. Although the company could have linked its DEC VAX systems to its IBM equipment through a DEC/SNA gateway, Renault opted for the OSI protocols, even though it required more implementation work in the short term. "We want to link our processors with OSI protocols, not SNA protocols," Pimont said.

The new software represents the second time the company has taken an active role in developing OSI software for an IBM mainframe. Three years ago, Renault and Marben began developing software to enable DEC VAX system users to use OSI protocols to download information from an IBM mainframe.

That development effort resulted in the software the company now uses to connect approximately a dozen DEC VAX systems to an IBM 3090 mainframe. The communications software supports computer-aided design and manufacturing applications and enables 50 engineers in the company's trucking division to download design information stored on an IBM Information Management System (IMS) data base running on the IBM mainframe.

For this application, Renault has been using X.25 protocols for Layers 1 through 3 of the network. For Layers 4 and 5, Marben software modules translate IBM and DEC protocols to comparable OSI protocols. A protocol-conversion unit translates data from ASCII format to EBCDIC format used on IBM mainframes.

Marben has a joint development agreement with Omnicom Corp., a Vienna, Va., consulting and software firm, which developed some of the OSI software modules.

Upgrades planned

Renault plans two major network upgrades. First, the company plans to replace its X.25 links with an Ethernet link. "We would like to connect our IBM mainframe to an Ethernet network," Pimont said. Currently, the X.25 links operate at a speed of 64K bit/sec, much slower than Ethernet's 10M bit/sec transmission rate. An IBM 9370 processor will act as the gateway between the Ethernet network and the mainframe.

Once that work is completed, Renault will replace the protocol-conversion unit with software modules that translate upper level OSI protocols to IBM's LU 6.2 protocol. The VAX will then be able to communicate with the IBM host on a peer-to-peer basis. Currently, the two processors are only able to transmit files. "The new software will enable a VAX to establish an IMS session, transmit a transaction to the data base, receive the result of the transaction and close the session," Pimont said.

When the new software is completed, it could be sold to other users. The software modules that Marben and Renault developed three years ago were incorporated into Marben's product line.

Omnicom pact

Marben has a joint development agreement with Omnicom Corp., a Vienna, Va., consulting and software firm, which developed some of the OSI software modules. Omnicom markets the line in the U.S. as its Osilogue software series.

Because IBM is actively involved in the development of the new software, Pimont did not know what Marben's or IBM's plans would be for the new OSI software. ◪

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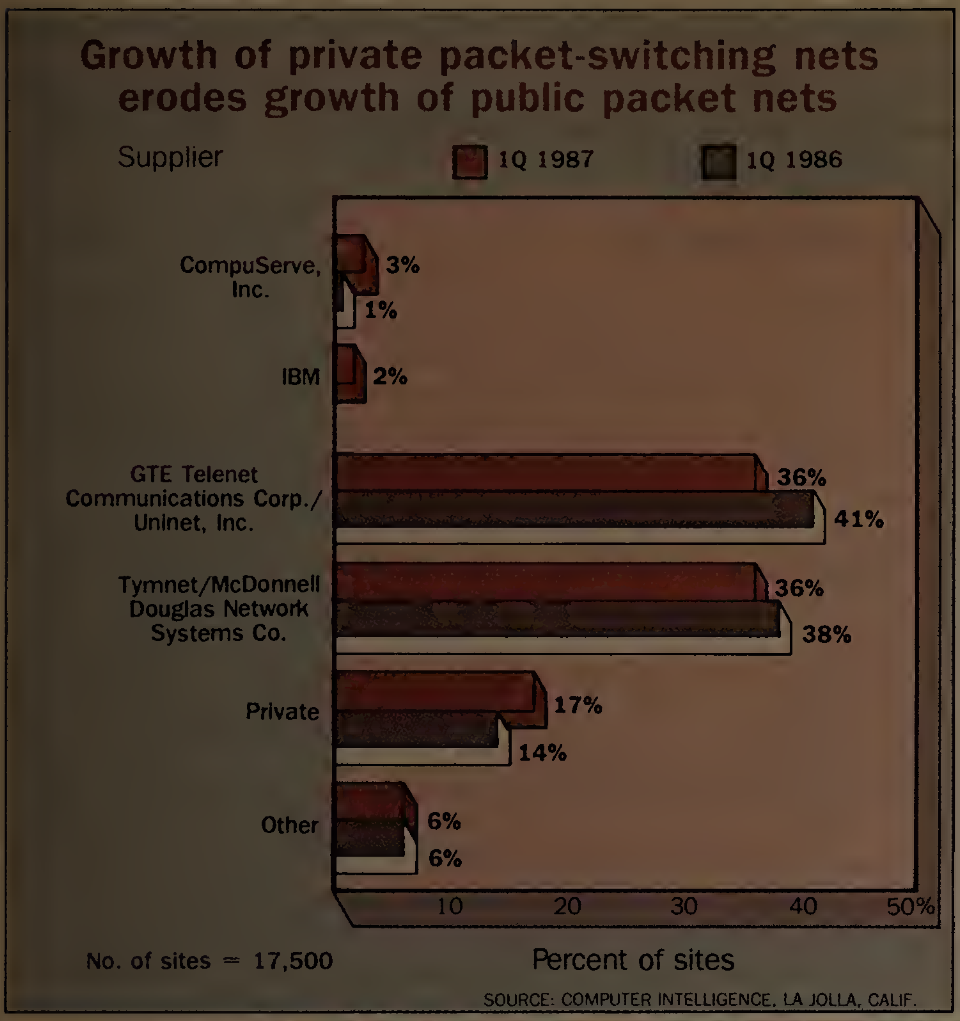
INDUSTRY UPDATE

CBEMA decries tariff increases

The Computer and Business Equipment Manufacturer's Association is voicing its opposition to tariff increases on information technology products. The tariff increases, imposed by the federal government to alleviate the effects of trade imbalance, have resulted in sharp increases in the cost of semiconductors for U.S. companies.


Growth of private packet-switching nets erodes growth of public packet nets

SOURCE: COMPUTER INTELLIGENCE, LA JOLLA, CALIF.

DIVERSIFICATION

Bells still betting big on expansion

Despite mixed success, they'll keep growing.

BY PAM POWERS
Senior Editor

Despite mixed success to date with diversification, the regional Bell holding companies are clinging tenaciously to their expansion plans in hopes of becoming one-stop shopping centers for business customers.

Top RBHC officials interviewed by *Network World* said their companies will continue aggressively expanding their presence in areas such as customer premises equipment and software, despite the tough competition and limited profitability many of their nonregulated enterprises have encountered thus far.

In an effort to maintain customer control, the firms intend to offer a wide range of computer and telecommunications products, including software targeted at vertical markets.

"The strategy is to control the customer account by offering all possible communications solutions," said Richard Dietz, managing director of strategic planning for Southwestern Bell Corp. "We expand to maintain control of the account, but at the same time, we're trying to enter what will ultimately be profitable businesses."

Expansion with profitability may not be attainable for many of the RBHCs for the time being. Southwestern Bell Telecommunications, Inc., a subsidiary of the holding company,

See **Expansion** page 10

PBX MARKET

Ztel faces new challenge

Creditor seeks liquidation of firm's assets.

BY BOB HAMEL
Senior Editor

BOSTON — One of Ztel, Inc.'s largest creditors Thursday is expected to ask a federal court here to force the star-crossed private branch exchange manufacturer to liquidate assets to pay off its debts.

Ballardvale Park Associates, owner of the Wilmington, Mass., building that served as Ztel's headquarters, said it will petition the U.S. Bankruptcy Court, District of Massachusetts, to order Ztel to liquidate assets according to Chapter 7 of the federal bankruptcy code. Ballardvale claims Ztel has failed to follow the repayment plan set up when the company sought Chapter 11 protection from creditors in May 1985.

According to Harry Murphy, special bankruptcy counsel for Barry, Bradley & Tarlow, Ballardvale's attorneys, Ztel owes its former landlord approximately $700,000 in unpaid rent.

Ztel was recently evicted from the Wilmington site ("Ztel gets the boot," *NW*, March 2) and has since relocated its operations to Harvard, Mass. Currently, only a handful of employees remain, following several rounds of layoffs.

As part of its Chapter 11 reorganization plan, which was approved by the court in August 1985, Ztel was to repay creditors over a four-year period. "We are aware that Ztel has defaulted on those payments," Murphy said, "and they have defaulted in their obligations to Ballardvale Park Associates." Murphy indicated that Ztel hadn't paid rent for more than 16 months.

Even if the court approves Ballardvale's request, what the company will get from Ztel is unclear. Proceeds from any involuntary liquidation of Ztel's meager assets would be divided among creditors. Ztel reportedly owes a total of $80 million to creditors and investors. "We won't know until the court decides which creditors get what first," Murphy said. "Ztel's asset sales won't be enough to pay off the $80 million, but my clients had to do something.

"If the assets are sold, and the best that can be realized is 10 cents on the dollar, then so be it," Murphy continued. "We'd like to see more, but you can't get blood from a stone."

In 1984, Ztel garnered a good deal of attention with the introduction of its Private Network Exchange (PNX), which was described as a fourth-generation integrated voice and data PBX. The company experienced problems with cost overruns and delays in delivering the PNX. It has since lost most of its corporate backing.

Mark Polbaum, an attorney with Hale & Dorr, counsel for Ztel, said his firm will oppose Ballardvale's request. "I don't think the court can properly convert this case to Chapter 7. It is not proper for the court to revisit a 2-year-old reorganization order and move the company into liquidation." Ztel officials were not available for comment. ◻

INDUSTRY EYE

PAM POWERS

The downside of merger mania

In today's golden age of mergers and acquisitions, the volatility of company ownership is an issue of real concern to users.

Many companies in the communications industry are potential candidates for acquisition, and our acquisitive society has spawned partnerships between companies whose customers would have been better served if the merging firms had remained apart. Problems from these imperfect pairings inevitably trickle down to customers.

Mergers frequently result in staff reductions. The upside to that is decreased operating costs for the vendor, which may be passed on to the user in the form of lower prices. But the downside is the period of upheaval that results as jobs are shifted and eliminated and workers suffer from low morale. That can translate into, among other things, a reduction in service levels for customers.

Mergers also invariably shift control of a company from one group to another. Such changes are effected to ensure that the new operation is run according to the acquiring company's dictates.

Usually, the acquiring company's interests lie with achieving peak profitability as expeditiously as possible. That can lead to the selling off or termination of product lines that haven't maintained strong sales, leaving users with obsolete equipment and no one to service it.

Of course, not all mergers cause problems for users. If the merging companies boast complementary strengths, customers can actually benefit. Telenet Communications Corp.'s merger with Uninet, Inc. has made the combined company a stronger competitor with a broader geographical reach. T-Bar, Inc.'s merger with

See **Mania** page 10

*International Data Corporation**
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BRIEFS

IBM reported a 23% decline in worldwide first quarter earnings from $1.017 billion last year to $785 million for the quarter ended March 31, 1987. Revenue grew from $6.104 billion in 1986 to $6.5 billion in 1987.

US West, Inc. awarded **Ericsson Information Systems, Inc.** a contract for its AXE digital central office switching equipment. The equipment will be used in the state of Idaho by Mountain Bell, one of US West's three telephone operating companies.

$

South Central Bell plans to purchase approximately 600,000 lines of digital central office equipment between 1988 and 1990 from **Stromberg-Carlson Corp.,** a subsidiary of The Plessey Co, plc.

Bells betting on expansion

continued from page 9

markets customer premises equipment such as private branch exchanges and key systems to mid-range and large business customers nationwide. Dietz acknowledged that customer premises equipment sales is a "tough business," characterized by strong competition and slim margins.

"We and other vendors all sell similar equipment, so the competition is on price rather than features," Dietz explained.

Nonetheless, customer premises equipment sales are critical to Southwestern Bell's overall strategy of cementing account control, he said, and the RBHC intends to expand its product line soon to include facsimile and other office equipment, as well as a variety of PBX products and software.

Michael Dortch, a senior analyst with Boston-based The Yankee Group, said that despite some well-publicized problems in their nonregulated businesses — such as US West, Inc.'s withdrawal from customer premises equipment sales beyond its core territory — the RBHCs have not fared as badly in their expansion efforts as some observers have claimed.

However, Dortch said the RBHCs still must refine their expansion strategies. "The RBHCs need a comprehensive strategy," he said. "But do they have that strategy? No, they don't."

Nynex Corp. officials acknowledged that diversification has taken its toll. "You can't start businesses without losing money, and we have a whole portfolio of them," said Harvey Leong, Nynex's corporate director of corporate planning. "It's a financial hurdle, but the goal is to build strong businesses for the long term."

Like Southwestern Bell, Nynex sees its business as the provision of all forms of communications equipment and services.

In giving form to that approach, Nynex has acquired the nationwide chain of Datago stores that sell, finance and service personal computers, key systems, PBXs and other equipment.

That move was followed by the acquisition of IBM's retail product centers. Leong said Nynex's acquisitions of companies already well-established in the customer premises equipment market have made the transition to that business easier for the RBHC.

Nynex has acquired three software companies that target vertical markets. For example, the BIS Group, a London-based software company purchased by Nynex, markets software for branch banking applications. Nynex also acquired Telco Research, which supplies call accounting software.

Bell Atlantic Corp. waded into customer premises equipment through its Bell Atlanticom Systems, Inc. subsidiary and into maintenance of customer premises equipment with the acquisition of Sorbus, Inc. The company also purchased software vendor Technology Concepts, Inc. Skip McGrew, Bell Atlantic's director of strategic systems and planning would not comment on the profitability of any of the company's unregulated operations.

McGrew indicated that Bell Atlantic is undaunted by the potential problems of expansionism. He said Bell Atlantic is encouraged by an overall annual revenue growth rate of 40% in its diversified businesses, and he added that the RBHC intends to further widen its presence in the software arena.

"If we want to compete effectively in the information services business, we have to provide a complete line of products and services," McGrew said.

Downside of merger mania

continued from page 9

Data Switch Corp., although executed to save the former from the perils of a hostile takeover, will probably work to strengthen both as a result of their combined expertise in the same markets.

If Memotec Data, Inc.'s acquisition of Infinet, Inc. bears fruit in the form of an integrated product line, those companies will move into the networking market when they otherwise would have stood on the periphery with discrete product lines that didn't provide a complete communications solution.

Nevertheless, the potential dangers inherent in mergers demand caution on the part of users. Now, more than ever, the user has to eschew the "emotional" buy based on convenience, long-standing loyalty to a vendor or mere price evaluation, and carefully assess the vendor's financial stability.

A working knowledge of a firm's financial strengths and weaknesses could save the user some nasty surprises.

TELECOM TRENDS

Rates drop for New York Tel customers

New York state's Public Service Committee recently adopted a settlement among New York Telephone Co., Gov. Mario Cuomo and the state Consumer Protection Board that calls for a one-time $100 million rate reduction in August.

The arrangement will also place a moratorium on any general rate increases until Jan. 1, 1991, and it will eliminate all charges related to inside wire at the end of 1989. New York Telephone would not say what business communications services' prices would be decreased by this ruling.

INTERVIEW

TMS boss talks tactics

Blumenstein discusses IBM/Rolm marketing group.

When IBM transferred 6,000 Rolm Corp. salespeople to its Information Systems Group (ISG) last month, it took a giant step forward in its effort to integrate Rolm products and services into its mainstream data processing business.

The IBM/Rolm Telecommunications Marketing and Service organization (TMS) strives to offer users a single point of contact for IBM and Rolm telecommunications products. Jack Blumenstein, former vice-president of Rolm, heads TMS and reports to Ed Lucente, IBM vice-president and ISG group executive.

Network World *Senior Editor Bob Wallace recently spoke with Blumenstein concerning Rolm's future identity, its marketing strategy and what users can expect to hear when a TMS team visits their facilities.*

The recent creation of TMS has raised some concern among users that the identity of Rolm is changing. Some view Rolm as gradually becoming a research and development arm of IBM. What are you doing to assure users that Rolm won't fade away, and what identity are you trying to create for TMS?

What we are trying to do with this organization is coordinate with other parts of the IBM marketing force to offer a more coordinated and integrated approach to customers. And, at the

See **TMS** page 13

Jack Blumenstein

Comparison of AT&T's small and medium-sized systems

Switch type	Merlin 3070	System 25	System 75XE	System 75
Technology	Analog/hybrid	Digital PBX	Digital PBX	Digital PBX
Capacities*				
Stations (maximum)	70	200	600	800
Trunks	30	104	200	200
Data ports	—	104	400	400
Attendant consoles	5	2	7**	7**
Simultaneous conversations	22	115	241	241
Trunk groups	11	16	99	99
Networking	No tie-line support	ETN end point	Main node or ETN end point; T-1; DMI; DS1	Main node or ETN end point; T-1; DMI; DS1
Data-handling capabilities	Limited (PC via data module), dedicated modems	104 ports, asynchronous = 19.2K bit/sec, internal modem pooling	600 ports, asynchronous = 19.2K bit/sec, synchronous = 64K bit/sec, internal and external modem pooling	800 ports, asynchronous = 19.2K bit/sec, synchronous = 64K bit/sec, internal and external modem pooling

* Maximums on System 25 and System 75 models cannot be achieved simultaneously.

** One for night service only.

DMI = Digital Multiplexed Interface, a PBX-to-computer interface for T-1 digital transmission facilities

ETN = Electronic Tandem Network

SOURCE: AT&T, BASKING RIDGE, N.J.

VOICE COMMUNICATIONS

Hercules turns to V-Net

BY BOB WALLACE
Senior Editor

WILMINGTON, Del. — MCI Communications Corp.'s effort to remove voice traffic from two Satellite Business Systems' (SBS) satellites has forced chemical manufacturer Hercules, Inc. to shift its voice traffic to MCI's virtual network service.

As part of a three-year effort to restructure its long-distance and local communications nets for cost, half of Hercules' 38 domestic locations have been cut over to V-Net.

The company, which drastically revamped its local voice and data network in 1985 with the help of Diamond State Telephone, is moving its long-distance voice traffic to V-Net to replace net links originally leased from SBS. MCI acquired SBS from IBM in 1985 as part of a deal that resulted in IBM acquiring 16% of MCI.

Hercules relies on seven shared SBS earth stations, scattered across the nation, to handle much of its long-distance data transmission needs. MCI still provides this

See **Hercules** page 12

CROSS TALK

BOB WALLACE

PBX buyers beware of loading on the options

Trying to buy a stripped-down, baseline private branch exchange is about as difficult as buying an automobile with no options.

PBX makers prefer to sell feature-rich switches, as evidenced by the recent introduction of the AT&T System 75XE, the Northern Telecom, Inc. SL-1ST and the Mitel Corp. SX 2000S-ICS, just as automobile dealers try to sell cars laden with costly options.

But are communications users shopping for products with all the technologically advanced features? In many cases, the answer is no.

PBX vendors are pushing distributed networking applications, Integrated Services Digital Network interfaces, voice-messaging systems and PBX-to-computer interfaces. Some users question the short-term need for these enhanced features.

Like the unwary car buyer who ends up with a car equipped with cruise control, a compact disc player and a full-blown eight-cylinder fuel-injected engine just to shuttle back and forth to the supermarket, the PBX user may end up with a switch with countless features that are simply not used.

These unused capabilities, in both scenarios, cost the user money. Before succumbing to vendors' urgings to plan for the future, users should assess the needs of their end-user community. If the end users say call forwarding, call waiting, call holding and conference calling are the needed features — with maybe one or two identified as likely to be needed in the immediate future — users should consider shopping for PBXs with just that feature set in mind.

In addition to polling end users within the company, the communications manager should poll outside users of the firm's telephone system to see what functions they use. These users may offer valuable insights into the need or the lack of need for certain switch features.

These features can be added to a switch at a later date, when demand develops. In the interim, the user could do the surveying necessary to avoid the expense of acquiring switch features that may not be used for long periods of time.

Switch add-ons are widely available from major PBX vendors as well as a number of nationwide companies that do nothing but sell PBX add-ons as a main line of business. If a need for an additional feature is identified, it could be added when it is likely to be used.

Hercules turns to V-Net

continued from page 11

shared earth station service, SBS Communications Network Service B, to a few other large customers.

An ambitious, and now completed, local voice network serves the three company sites, its headquarters here, a research center and its corporate marketing center. These sites are linked with fiber-optic cable that operates at 45M bit/sec. Voice, data and videoconferencing between the three Hercules buildings are carried over the lightwave system.

Use of the local fiber net, which has been operational for 13 months, enabled Hercules to eliminate one of the pair of satellite earth stations that were located at the company's headquarters.

Pete Derosier, director of telecommunications for Hercules, said use of Diamond State Telephone fiber-optic cable rights-of-way between central offices was instrumental to the project's success.

"We do not actually connect to the central office to access Diamond State services," Derosier said. "The telephone company already had these fiber pipes between two of their central offices, which served all three of our local sites."

Dick MacKenzie, a systems design consultant with Diamond State Telephone, said the BOC put the interoffice fiber to work for Hercules so that the company would not seek bypass alternatives. "We were not blind to the fact that there were users out there that wanted to bypass us," he said. "We figured if we were going to get bypassed, we might as well bypass ourselves and maintain the user revenue stream."

Diamond State Telephone's MacKenzie said the BOC put the interoffice fiber to work for Hercules so that the company would not seek bypass alternatives. "We were not blind to the fact that there were users out there that wanted to bypass us," he said. "We figured if we were going to get bypassed, we might as well bypass ourselves and maintain the user revenue stream."

Expansion without cost increases

Derosier said the use of the lightwave system enabled Hercules to expand greatly the capacity of its local communications network without increasing its costs. He said use of the fiber net, instead of copper transmission facilities, would save the firm $4 million over a five-year period.

Derosier said channel bank gear, located in Hercules' facilities,

▶ *ARKANSAS*

Ericsson wins state net bid

Network to tie 8,000 end users.

BY BOB WALLACE
Senior Editor

LITTLE ROCK, Ark. — The state of Arkansas recently awarded a five-year, $8.7 million contract to Ericsson Information Systems, Inc. under which the vendor will construct a communications network featuring its MD110 voice/data private branch exchange.

The state net, which will serve some 8,000 end users, will replace the state's current Centrex communications service. The network will consist of three major nodes: the first at the state's Capital Complex, a second at the University of Arkansas at Little Rock and the third at the university's Medical Center. A fourth site, the State Mental Health Hospital, will be linked to the network through the Medical Center.

The state net will serve some 8,000 end users and replace the state's current Centrex communications service. The net will consist of three major nodes.

Ericsson will also install a fiber-optic cable-based backbone that will interconnect the three network nodes. The system is designed to handle the location's voice and data communications needs.

Instead of using a single switch to serve network users, the Ericsson MD110 will be used in a distributed switch configuration with a star architecture. Line Interface Modules, which are located in at least two of the sites, will be used to concentrate voice and data traffic and channel it to the network hub.

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hooks the fiber to the firm's AT&T private branch exchange.

Hercules currently uses one System 85 and a pair of Dimension 2000s.

The company's telecommunications staff consists of five full-time staffers. It also includes four Hercules employees from other departments that are called in for specific networking projects. The staff wields a $14 million annual telecommunications budget.

Approval for the local fiber net project came from a standing management committee comprising Hercules' chairman of the board, the vice-chairman of the board, the firm's chief financial officer and its vice-president of international operations.

TMS boss talks tactics

continued from page 11

same time, we are trying to maintain a distinct focus on those areas where expertise in Rolm systems is important. It is our goal — and we expect to achieve this goal — not to in any way reduce the level of support or change the way we operate with those customers that we are used to dealing with.

Many vendors have taken steps to develop a more focused approach to users' voice and data needs. Are users ready for this?

That is a very legitimate concern. One of our challenges will be to bring that coordinated focus to bear where it is critical to the user, while remaining effective and efficient at what we have historically done separately.

Many large user corporations have separate voice and data departments. What kind of problems does that pose for TMS?

You have to work with a customer they way the customer wants to work. There is no doubt that the trend is for customers to pull these functions together. Where this doesn't happen, we continue to work with the people we have worked with for some time. There are few accounts where one of us has a presence and the other doesn't.

One of the elements of coordinating between the ISG sales force and our sales force is to make sure we understand who we are working with and what areas still need to be focused on separately.

We will absolutely make sure that we are organized to work with the customer the way he wants. We are certainly not going to try to impose our style on a customer company that is structured differently.

It would be a mistake today to ignore the fact that many customers are not integrated in the way they view things. We need to preserve a separate focus. The goal is to have a fully integrated and coordinated effort that spans the entire IBM product line for telecommunications products and nontelecommunications products.

If TMS calls on a national account where all the company's data is handled by Digital Equipment Corp. equipment, would you bring the IBM data people in on that call?

From the Rolm side, we have had long relationships with accounts that have DEC MIS shops. We will absolutely try to show the customer why we can do things across the IBM/Rolm product line that will be to their benefit over time.

> "From the Rolm side, we have had long relationships with accounts that have DEC MIS shops. We will absolutely try to show the customer why we can do things across the IBM/Rolm product line that will be to their benefit over time."

We would like to sell them IBM data products. At the same time, we have made it clear, as part of their telecommunications backbone, that we will work with many vendors in an open environment.

The opposite is true in situations where IBM accounts have a strong Northern Telecom or AT&T presence. We will continue to try to convince that customer that we have a better joint solution for them.

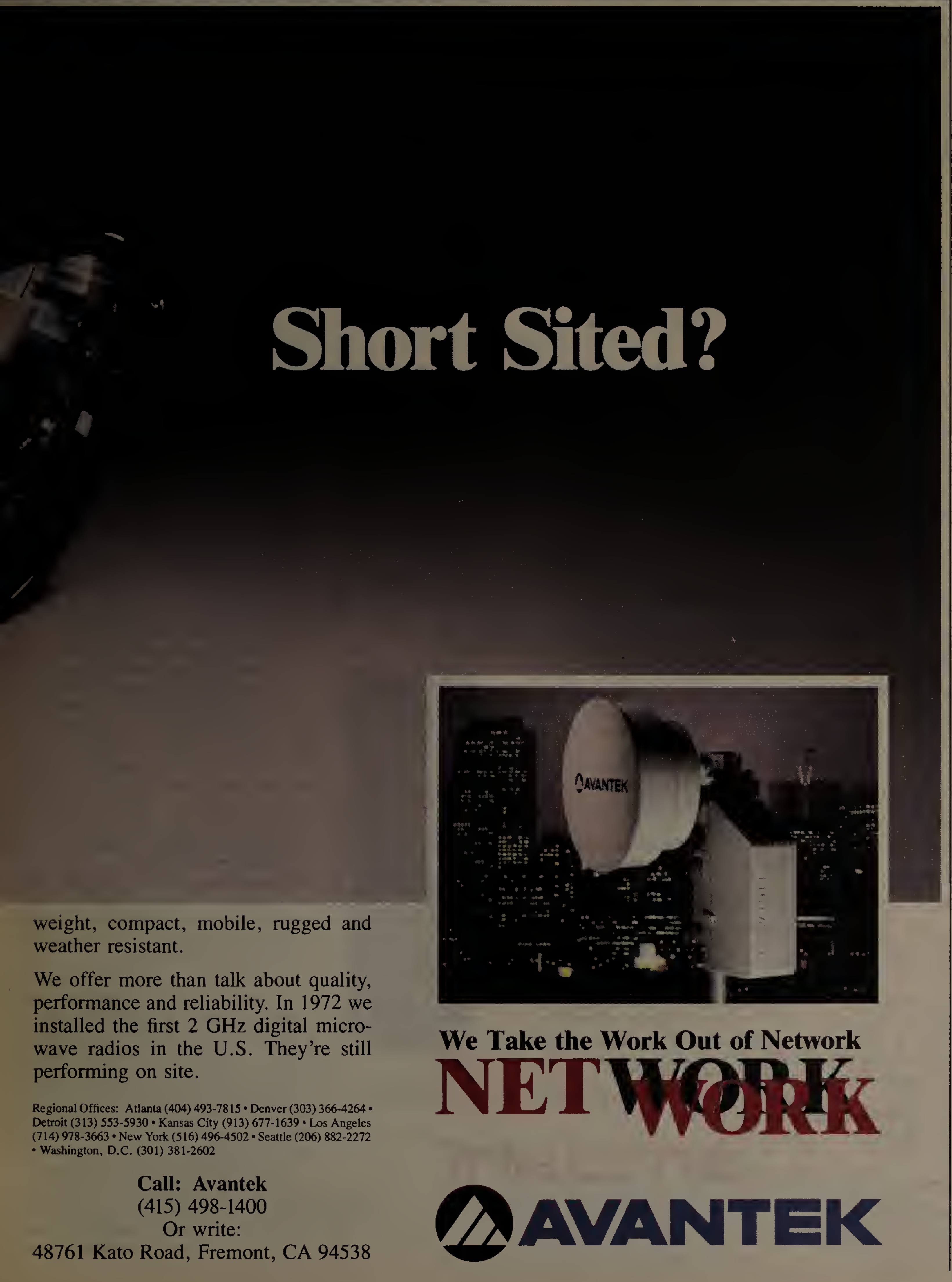
That would seem to present some problems to TMS in instances where users are not looking for joint voice and data solutions.

If you are looking at identifying applications and solving some customer problems, you need to build a backbone voice system that also supports data for other applications.

The customer can't solve that problem if his telephone and data people aren't talking together. If they report to the same person, or if the customer puts together a task force or a steering committee, they have to organize to figure out how they want to solve the application problem.

Are you concerned that non-IBM accounts might be put off by

See **TMS** page 14



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TMS boss talks tactics

continued from page 13

the TMS marketing approach?

I don't think so. I don't see why this would be any different from AT&T wanting to sell computers, telephone services and network services.

We have a value-added integrated solution application that requires data products and voice products. We hope we will win with this. I would think a customer would see this as a benefit.

In an instance where a large user has IBM on the data side and Rolm on the voice side, but data and voice disciplines are still separate, would TMS send a merged team to speak with the user? Or would you send the IBM segment to MIS and the Rolm segment to telecommunications?

We are all in the IBM marketing force. Typically, a large account has a team of experts, not a small number of generalists, headed by an account executive. What we will try to do is answer the questions: How do we want to approach this account? Do we want to have joint calls at the executive level and separate calls at the implementation level? When we are looking at applications that maybe cut across these areas, how does the customer want to work it?

What kinds of resources are committed to this effort in terms of financial backing and personnel?

We draw upon the overall support structure in place in ISG, including their national service division. We use the marketing resources that are already in place in IBM's marketing channels for supporting telecommunications products. [These include] non-Rolm products, controllers, local-area networks and so on.

Will all of the 6,000 Rolm salespeople be fit into the TMS organization?

We need many more people than we have today to serve the marketplace effectively. Our base of customers is growing very rapidly. We are stressed today because we have too few people to do what we want. Part of our goal is to get additional resources focused on telecommunications in my organization and those that support it, if we are to be successful.

It looks like the missing link in TMS is communications services. Are there any plans to bring MCI into this program to round out the offering?

In customer network applications where they request MCI as the network vendor or where we think the combination with MCI will provide the solution, we will do that.

In general terms, the way you want to work with network providers is to make sure you have many flexible options so you can take advantage of changing economics.

> "Our strategy is to provide the user with the flexibility and tools necessary to pick whatever network pipe happens to be the most cost-effective at that time."

Our strategy is to provide the user with flexibility and the tools necessary to pick whatever network pipe happens to be the most cost-effective pipe at that point in time.

Why hasn't IBM brought MCI, the second largest communications carrier, aboard?

Our strategic direction is to work with any number of network providers. We are very interested in making sure there is a competitive set of network offerings.

To what extent is TMS willing to go into user locations to help communications managers perform equipment inventories?

We believe a major opportunity for us is in providing consultation, system evaluation and system integration-type services for customers where we can help them analyze their network configurations. [We will help them] optimize their traffic flow as well as their inventory.

What are some of your users' concerns about TMS?

Users want to make sure we are not going to do anything in the interim that will decrease the effectiveness of the team they are currently working with.

A user with 50 locations nationwide might not want to make a multimillion dollar equipment decision until he knows what PBXs and other telecommunications gear he has at these 50 locations. Will Rolm actually go out and perform this service before a bid is finalized?

Sure. We typically do this today for [customers with] complex systems. This is not new. That's fairly typical of the work you have to do in order to submit a proposal to an end user. ☑

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DATA DELIVERY/ NET MANAGEMENT

ISO chair selected

Will Collins has been elected chairman of the 25-person committee devising network management standards for the International Standards Organization's Open Systems Interconnect model. Collins, principal engineer of Codex Corp.'s network management development group, will serve a three-year term. He replaces Jon Becker of Unisys Corp.

▶ *MODEM MAKERS*

Racal plugs its dialing protocol

Firm wants SADL to be de facto standard for synchronous modems.

BY PAUL KORZENIOWSKI
Senior Editor

MILPITAS, Calif. — Taking a page from a competitor's book, Racal-Vadic, Inc. is attempting to parlay its proprietary synchronous-modem dialing protocol into a de facto standard and leverage future sales.

Racal-Vadic is trying to convince vendors and users to incorporate its Synchronous Auto Dial Language (SADL) into their products and applications in a strategy similar to the one that made Hayes Microcomputer Products, Inc. the premiere asynchronous modem maker, said Karl Zorzi, vice-president of data communications products at Racal-Vadic.

Hayes Microcomputer developed a command set for use with its popular asynchronous modem line and then encour-

See **Racal** page 16

DATA DIALOGUE

BY PAUL KORZENIOWSKI

IBM: Integration is the best defense

IBM recently took a major step to protect its vulnerable pink underbelly, incompatible processor lines. Its Systems Application Architecture (SAA) is designed to enable software vendors and users, and even IBM itself, to develop applications that run across IBM 370 mainframes, 3X minicomputers and Personal Computers.

During the past few years, IBM has been criticized because users are not easily able to link applications running on IBM's various processors. In contrast, Digital Equipment Corp. has garnered a lot of praise for supplying users with a robust set of easily integrated products. For example, many software packages run on small VAXes as well as larger systems, which resemble low-end mainframes.

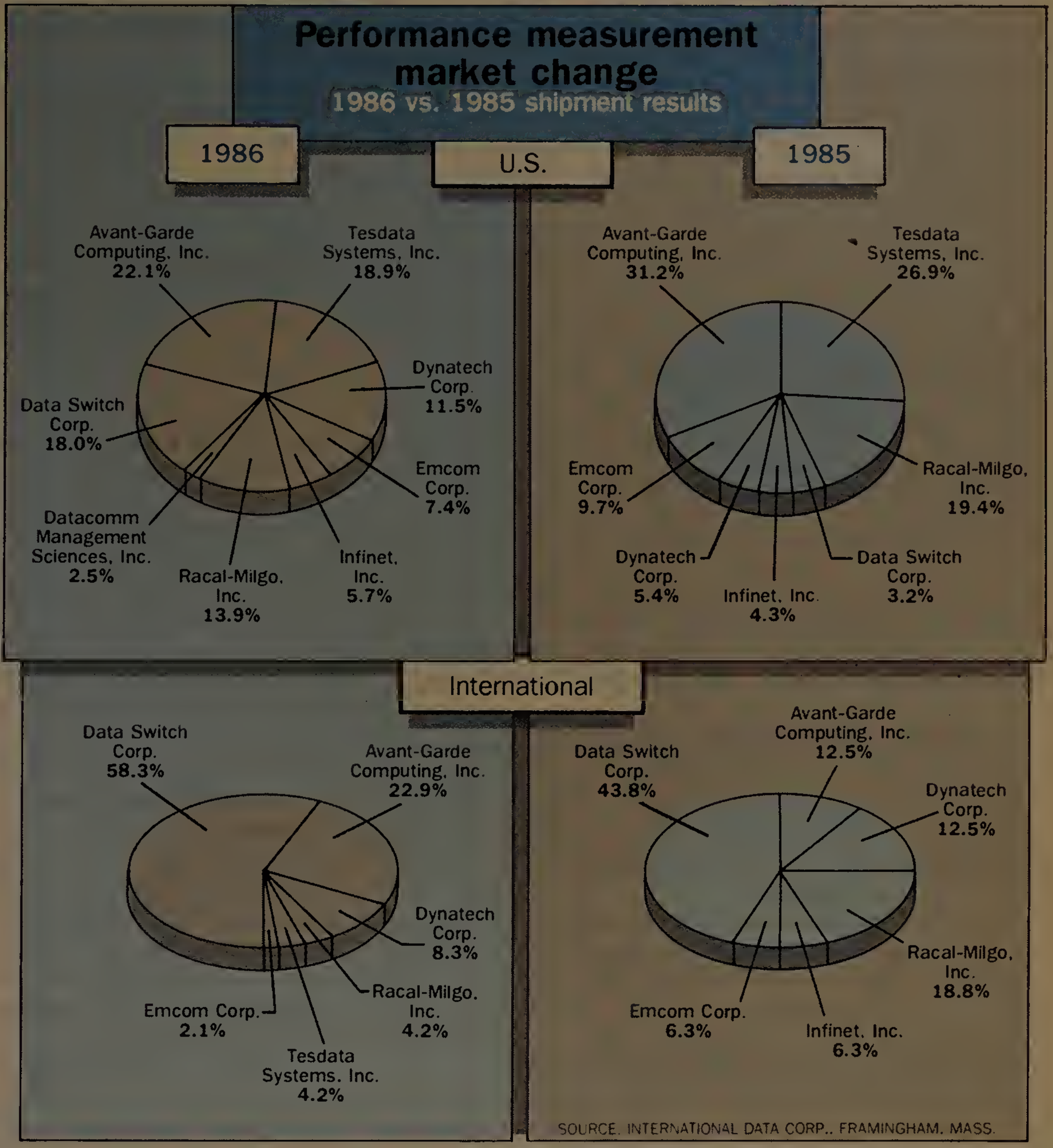
A few years ago, DEC found itself in a predicament similar to IBM's. The company's spectacular growth had slowed; an initial attempt to make good in the microcomputer market had failed and analysts were questioning DEC's strategy.

DEC faced up to some tough business decisions, decisions that alienated certain customers. After a close examination, the company determined it was supporting too many processor lines. So, DEC phased out its System/20, slowed down product development for the PDP-11 and concentrated on the VAX line. The result is the VAX-centered, single-hardware architecture that is now the glue for the company's integrated product line.

IBM has made similar choices. The company last year discontinued production of its 8100 distributed processor and positioned the Series/1 as a communications processor. But IBM is still left with three major incompatible processor lines, the Personal Computer, System 3X and 370 series. Because each line has been responsible for billions of dollars in revenue, IBM determined that none of the lines could be phased out.

So, the company has taken a different course, determining that software, not a single processor architecture, will solve the integration problem. IBM intends to use soft-

See **IBM** page 16



SOURCE. INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

▶ *NETWORK MANAGEMENT*

Market to grow rapidly

Study predicts 31% growth through decade.

BY JOSH GONZE
Staff Writer

FRAMINGHAM, Mass. — The network management market will grow a healthy 31% per year through 1991 and will be marked by intense competition as new vendors enter the market and established companies broaden their product lines, according to a recently released report from International Data Corp (IDC).

IDC's "Network Management and Performance Measurement" study covered both network management and performance measurement products.

The company, based here, defined performance measurement products as tools that monitor networks for response times and traffic flow and those that perform error rate and loopback tests. Network management/control systems help users restore and reconfigure networks and generate management reports.

According to IDC, users spent more than $85 million on network management and performance measurement products in 1986, an increase of 22% from 1985.

Separately, IDC predicted that revenue from sales of network management products will grow at a compound annual rate of 31% through 1991, while revenue from sales of performance measurement tools will grow at a considerably slower rate of less than 5%. The company said the performance of the measurement tools market is hampered by "customer apprehension resulting from rapidly changing technology and price competition."

Codex's share of the network management market fell from 27.1% in 1985 to 14.7% in 1986. General Datacomm Industries, Inc. led the market in 1986 with a 16.5% share, followed by Codex, Paradyne Corp. with 13.9%, Racal-Milgo, Inc. with 12.4%, Digilog, Inc. with 12.3%, Dynatech Data Systems with 9.3% and AT&T with 6.6%.

In the performance measurement segment, IDC said that because Data Switch Corp.'s performance measurement systems were priced well below other offerings, competitors were forced to lower their prices. The market research firm said Avant-Garde Computing, Inc. held a 39% market share, followed by Tesdata Systems,

See **Market** page 16

Racal plugs its dialing protocol

continued from page 15

aged software vendors and users to incorporate it into their products. The resultant software products, designed to support the command set, made it a de facto standard, forcing competitors to include Hayes Microcomputer compatibility to ensure they could support popular communications packages. The strategy made Hayes Microcomputer one of the top asynchronous modem makers.

No similar standard exists for synchronous communications, despite the fact that synchronous technology has been used for more than 10 years. "There is a need for a synchronous communications standard," noted William Schlosser, director of marketing at Universal Data Systems, Inc. in Huntsville, Ala.

Racal-Vadic hopes that SADL will emerge as that standard. The dialing language was developed in 1984 for a large automative company that was one of Racal-Vadic's customers. During the next two years, Racal-Vadic incorporated SADL into new models of its synchronous modems sold to many large customers. Racal-Vadic officials claimed that a half-dozen companies, including General Motors Corp. in Canada and Sears Communications Corp., currently use the dialing language.

Last fall, Racal-Vadic began actively trying to convince other vendors to incorporate SADL into their products. To date, roughly 15 have agreed to support the language, including NCR Corp., Altos Computer Systems, Digital Equipment Corp., Pathway Design, Inc., Cleo Software, Inc., Winterhalter, Inc. and On-Line Software International, Inc. Zorzi said IBM may soon add SADL support to its System/36 minicomputer.

Despite these inroads, Racal-Vadic faces many obstacles in its attempt to make SADL a de facto standard. The major hurdle will be to convince personal computer users with asynchronous communications packages to migrate to synchronous packages such as SADL.

Zorzi said there are a number of reasons why users might be convinced. For one, users are beginning to work with sophisticated applications such as file transfers and distributed data bases. Also, synchronous protocols can move large amounts of data more easily than asynchronous protocols.

Besides this roadblock, SADL faces opposition from other vendors and from standards organizations. Universal Data Systems' Schlosser said that SADL is a long shot. "There is no comparison between Hayes' situation and Racal-Vadic's situation," he said. "There were no asynchronous applications written when Hayes introduced its language. There are already a lot of synchronous applications." Schlosser added that standards committees, not vendors, set standards. The Consultative Committee on International Telephony and Telegraphy is trying to establish a synchronous dialing language standard, the emerging V.25bis standard. Universal Data Systems is one of a handful of companies that plan to introduce products based on that standard.

Racal-Vadic's Zorzi said V.25bis lacks two items included in SADL. First, users cannot configure a V.25bis modem from a terminal. Second, V.25bis modems are unable to monitor the progress of a call attempt.

Because of these limitations, Racal-Vadic decided to push its own standard, rather than follow the CCITT recommendation.

Schlosser said users will determine which language emerges as an industry standard. ◘

TELENEX CABLE CONVERTER UNITS

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TELENEX CORPORATION

IBM defense is integration

continued from page 15

ware to mask differences in three processor lines, and SAA outlines how the job will be handled. Users should not expect a quick fix, because implementation of SAA will be more difficult than was the case with IBM's Systems Network Architecture.

SNA deals with only one major area: communications. SAA involves communications as well as application development tools, changes to major systems software such as operating systems, and design of a common end-user interface. Implementing the first few steps in SAA will require a few years; the pieces won't be in place until 1990 at the earliest.

Upon completion, SAA could provide users with a number of benefits, including enhanced communications capabilities. Historically, SNA has supported only IBM communications protocols, and IBM has been slow to incorporate standards like Ethernet and X.25.

SAA encompasses X.25 protocols as well as Token-Ring Network, Low Entry Networking and Synchronous Data Link Control protocols. IBM is attempting to isolate applications from communications so users can employ any type of protocol, including Ethernet and X.25, to connect IBM equipment.

In addition, SAA could dramatically increase sales of IBM processors. These days, even the most powerful processor is useless if it is isolated. IBM understands that point and is trying to lure software developers to write applications for its machines. The bait is a base of a few million microcomputers, hundreds of thousands of minicomputers and thousands of mainframes. No other company can offer developers such a large base.

IBM may have some trouble forcing internal development teams to stick to SAA standards. For example, Advanced Peer-to-Peer Communications is supposed to be an IBM standard, yet the protocol has been implemented differently on various IBM processors. The VM version of APPC differs dramatically from the version on the IBM Personal Computer.

> Users should not expect a quick fix, because implementation of SAA will be more difficult than IBM's Systems Network Architecture.

To ensure SAA compliance, IBM formed a new group to oversee SAA development. Vice-presidents from four IBM divisions will direct development of various SAA components for all IBM products.

If the managers can control the various IBM factions, SAA has a good chance of eventually succeeding. If not, IBM and its users will continue to face integration problems, and vendors like DEC will continue to reap greater sales. ◘

Market to grow

continued from page 15

Inc. with 25.5%, Data Switch with 10.8%, Dynatech Data Systems with 8.6% and Emcom Corp. with 6.6%.

Fueling rapid growth in the network management market is the fact that products are getting easier to use and are integrating additional functions.

Vendors are cutting the operator training necessary to manage a network control center by building network management systems around menu-driven, personal computer software. Windowing capabilities make these personal computer products easier to use by allowing the operator to monitor separate parts of the network simultaneously.

Six companies, Digilog, General Datacomm, AT&T, Tesdata Systems, Atlantic Research Corp. and Codex, recently introduced such systems, according to IDC.

Network management systems are also absorbing functions previously handled by separate net management and performance measurement systems.

Companies selling stand-alone performance measurement tools will lose sales, IDC warned, unless they tie their products to network management systems. This market shift will result in OEM contracts, joint ventures and mergers between companies in each of the two markets as performance measurement tool vendors protect their revenue base.

IDC predicted that vendors will also tie matrix switches and network management systems together, a strategy already undertaken by T-Bar, Inc., Data Switch and Dynatech Data Systems. These systems combine the nonblocked switching capability of matrix switches with a net management system's data base, centralized system control and alarm features. The result is an increase in the number of alternatives for routing transactions and swapping equipment when alarm conditions are detected.

IBM had a major impact on the network management market with the introduction of its NetView and NetView/PC products. Other vendors will have to rework their products to provide interfaces for these important IBM products. IDC said NetView will be used for IBM hosts, the Token-Ring Network, private branch exchanges and third-party applications.

Expert systems, or network management systems with artificial intelligence applications, can, in theory, put much of the burden of network knowledge on the computer. The study said no such products are now on the market.

The report, which sells for $1,500, includes vendor profiles with company backgrounds, product lines, strategies and market positions. For more information, call IDC at (617) 872-8200. ◘

LOCAL NETWORKING

“It’s absolutely clear in my mind what the application scopes of NETBIOS and LU 6.2 are. NETBIOS is an on-LAN interface. If you have one product directly connected to the LAN and another directly connected to the LAN, NETBIOS may be the best interface because it’s a little more efficient, it takes up a little less space in the PC and it’s becoming fairly widely used. If you’re going off-LAN or to an application on a host or medium-sized processor, then LU 6.2 is the right interface.

Robert F. Steen
Systems manager, local-area networks
IBM, Raleigh, N.C.

PC LAN PROGRAM

Users await true boost

Enhanced system still trails competitive offerings.

BY PAULA MUSICH
Senior Editor

IBM PC LAN Program users may have to “suffer through” the network operating system for at least another year before seeing a truly competitive offering from IBM. Then, it is likely that IBM will introduce a new offering based on its Operating System/2 for the new line of Personal System/2 microcomputers.

Although IBM announced performance enhancements to the program, users and consultants who install the software said they feel that because it is constrained by a single tasking operating system, it may never compare favorably with other offerings on the market.

The PC LAN Program is a network operating system for the IBM PC Network, a broadband network for Personal Computers, and the Token-Ring, IBM’s mainstream local network used to support Personal Computers, mid-range systems and mainframes.

The PC LAN Program provides file and printer sharing, as well as a messaging function. The program is installed in both servers and workstations, with different configurations for each. The software enables personal computer users to share applications and data bases in a network.

With the recent introduction of IBM’s next-generation Personal Computer, the Personal System/2, the company released Version 1.2 of the PC LAN Program, touted as being 4.8 times faster than the previous version, especially for random disk I/O operations in the server.

IBM achieved this improved speed primarily by adding disk caching, a commonly used technique that speeds up file access by placing the volumes containing requested files in dynamic

See **Users** page 18

LANMARKS

ERIC H. KILLORIN

Dear Mr. Olsen: Support MAP

An open memo to Digital Equipment Corp. President Ken Olsen.

Subject: Who should invest in MAP?

I’ve been reading with great interest your statements that General Motors Corp. is wrong to eliminate Ethernet as a viable networking option for the factory floor and that Manufacturing Automation Protocol, GM’s technology of choice for this application, isn’t the way to go.

I’m equally fascinated that you cite the huge dollar investment MAP would require along with the legal requirements to support such a product line as two of the chief reasons for resisting a major development effort for MAP products and services. Customer service is more at stake than the bottom-line implications of developing a MAP product set.

You’ve told the Emperor he has no clothes, and that makes you the unfortunate bearer of bad news. However, I don’t think GM will have to shoot you, the messenger, because your wounds have been self-inflicted.

Ethernet is an underrated technology and is often pigeonholed as a performance-bound network. Deterministic architectures and broadband signaling schemes are no panacea, and the MAP protocol isn’t going to make the factory of the future hum to the tune of world dominance.

GM knows this, but for whatever reason, they have chosen a non-Ethernet approach to factory communications and it’s unlikely that they’ll change their minds. This is true, especially now, since you’ve made this an emotional battle worthy of Irangate, not of rational product selection.

As a large customer, GM will push your MAP development commitment to the limit. Your firm is a leading vendor in computer networks for the very reason you use for avoiding an aggressive MAP development effort: For 10 years DEC has invested the necessary financial and human resources to position the VMS operating system, the Digital Network Architecture and the robust family of DECnet products as a unified, workable system.

You ask, “Who’ll support MAP?” If you want market share, the answer is, simply, DEC.

The use of optical fiber and some improvements in the retransmission portion of the Ethernet algorithm may indeed make Ethernet a more viable local net technology for the factory floor.

Even if GM could be swayed by all the software support, proven field testing and wealth of third-party backing Ethernet has today, you have made these factors meaningless by turning Ethernet vs. MAP into an emotional issue.

Noted management consultants suggest that the goal of the supplier is to acquire and retain customers. Profits are a result of that mission.

Replace this credo with one less mindful of fulfilling customers’ needs, and you’ll lose one of your best customers for all the wrong reasons.

Killorin is the publisher of “Netline,” an industry newsletter on computer networks, and president of Hyatt Research Corp., a data communications market research firm based in Andover, Ma.

Growth projections for three types of local networks

	Manufacturing systems networks	Terminal systems networks	PC networks
Year	No. of nets installed		
1987	1,060	48,488	170,275
1988	1,940	66,784	251,025
1989	3,300	90,312	355,559
1990	5,280	120,358	488,099
1991	8,140	158,547	652,449

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

ORACLE

Network DBMS packs unveiled

Products operate over Ethernet, Token-Ring nets.

BY PAULA MUSICH
Senior Editor

BELMONT, Calif. — Oracle Corp. last week unveiled a distributed data base management system server that operates over Ethernet and Token-Ring networks as well as asynchronous and 3270 coaxial links.

LANserver Oracle, which operates on Intel Corp. 80286 and 80386-based personal computers, including the new IBM Personal System/2 models 50, 60 and 80, is a relational data base server based on IBM’s Structured Query Language (SQL). The server’s Oracle kernel, which resides with data on a personal computer server, processes high-level SQL-formatted data requests from users on the network. It lets users access specific information without having to draw down entire blocks of data. The software supports Digital Equipment Corp. DECnet protocols and IBM’s LU 2 protocols.

LANserver Oracle is said to give local net users the same distributed DBMS capabilities offered by mainframe and minicomputer versions of Oracle with the company’s SQL*Star software. Its DBMS kernel and data can be accessed by applications and Oracle tools running in other nodes on the network. It can also be accessed by Oracle’s Networkstation Oracle.

This software, which runs on IBM Personal Computers, lets users access and update multiple DBMSs on different machines over a variety of communications links. An application running with Networkstation Oracle makes high-level SQL-formatted requests of the DBMS, which handles data base manipulation.

Networkstation Oracle works over asynchronous, 3270 coaxial or Ethernet links. Bundled with the product are SQL*Forms, a forms-based application generator; SQL*Calc, a spreadsheet with built-in SQL access to Oracle data bases; SQL*Plus, which performs ad hoc queries; and SQL*Report, a multitable report generator.

Networkstation Oracle is priced at $695 and will be available in the second quarter of 1987. LANserver Oracle is priced at $2,495 and will be available in the fourth quarter of 1987.

Users await true boost

continued from page 17

memory. This scheme, which is used to improve the performance of the file serving function of a network operating system, is employed in Novell, Inc.'s NetWare and 3Com Corp.'s 3+.

Early PC LAN Program user Konrad M. Wiley, a technical analyst with the Hospital Corp. of America in Nashville, believes IBM achieved greater disk I/O speed by "cleaning up the code," he said. "The IBM [PC LAN] code is a bad implementation of the NETBIOS protocols. IBM re-implemented their NETBIOS code and the PC LAN Program code to achieve faster performance," he said.

Speed is one of the most frequently cited complaints about the program. "It is frequently unacceptably slow," said David Ferris, president of the Ferrin Corp., a local network consulting firm in San Francisco.

Ferris said he believes the cause of the slow speed is the program's operating system. "That's a function of its single-tasking operating system at the server. Everybody has to get dealt with before the server can go off and serve other people," he said.

Whether speed is a problem for network users depends on the number of users accessing the file server and how creative the users are in configuring the software on network nodes. For John Lock, who installed a PC LAN Program to compare it to Novell's NetWare at The Coca-Cola Co. in Atlanta, the network is quite slow. To improve performance in the 40-node network, Lock spread the print-serving function across three network nodes, configured the file serving on another node and distributed a 3270 gateway to another workstation.

This ability to configure network nodes "on the fly" is one of the features Lock said he likes about the program. "The program is flexible enough to finely tune the performance of workstations and servers," he said. Despite this capability, Lock still found the PC LAN Program to be much slower than NetWare. Chuck Barlean, word processing manager at The Westin St. Francis, a hotel in San Francisco, said "speed is not a problem for us." Barlean's network includes four Personal Computer ATs linked over the broadband PC Network. Each Personal Computer AT is configured as a server, so that not all of the data users access is on the same server. Because all of the Personal Computer ATs are close to each other, users rarely invoke the messaging function.

Taking full advantage of the performance enhancements is no small project. To get the most out of the speed enhancements, IBM suggests that users run Version 1.2, in workstations as well as servers, in addition to the latest version of PC-DOS, Version 3.3. Also, they should install newly announced network adapters with the new IBM LAN Support Program or the IBM PC Network Protocol Driver.

Another criticism IBM addressed with the new release is capacity. The PC LAN program previously only supported 32 Network Basic I/O System sessions, which limits the number of users that can simultaneously access a server to share network resources. "Ten users could tie up the program because one application can use more than one NETBIOS session at a time," Lock said. IBM increased the number of simultaneous sessions to 254.

Still another criticism only partially addressed by IBM is the amount of memory taken up by the program and its prerequisite device drivers and NETBIOS support. "It requires a huge amount of memory," Ferris said. "Given the current 640K-byte [PC-DOS memory-addressing] constraints, you find you can only have a very stripped-down version of the networking software running on most machines in the network."

But stripping down the program to preserve memory sacrifices some features and makes the program less functional. Quite often, some of the electronic mail features are not configured in the program to save memory for other applications.

According to Wiley, IBM slightly reduced the memory overhead of the adapter-handler program, which is being replaced by the IBM LAN Support program with the new network adapters.

Other common complaints about the program that IBM did not address include inadequate implementation of electronic mail functions and lack of security. Mail messages can only be sent to users who are logged on to the network (there is no store and forward function), and there is no way to know who is logged onto the network at any given point.

"There is no security to speak of," Ferris said. "You can assign passwords, but only for directories and printers. To allow others to access those resources, you have to give those passwords out. Users have to learn lots and lots of passwords, and that's a tremendous headache." ◘

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COMMUNICATIONS MANAGER

"There are two kinds of people making money decisions in senior management. One goes with a gut feeling, knowing the proposal will benefit the company. The other guy needs a hard-dollar justification. As a manager, you've got to be able to sell to both."

Richard H. Colby
Manager of telecommunications
Johnson Control, Inc.
On selling to upper management

Seven steps to project design and control

1. Set a specific goal.
2. Set a final deadline.
3. Break the project into subtasks.
4. Organize subtasks by order of performance.
5. Set target dates and benchmarks.
6. Assign subtasks to self and others.
7. Monitor until completion.

SOURCE: STEPHANIE WINSTON, *THE ORGANIZED EXECUTIVE*, WARNER BOOKS, NEW YORK

NETWORK MANAGEMENT

Keeping the net up

Users are doing it for themselves.

BY MARY PETROSKY
West Coast Correspondent

SAN FRANCISCO — Keeping a communications network up and running is too important a job to entrust to vendors or outside service providers, said network managers at a recent conference on issues in service and support.

Because they are committed to servicing their own networks, managers from Bank of the West, Advanced Micro Devices, Inc. (AMD) and the Golden Gate Bridge, Highway and Transportation Department said cooperation from vendors in resolving hard-to-pinpoint net problems and the availability of good diagnostic tools are key issues. These managers expressed their views on network support at the ServiceTrends '87 Conference sponsored by the Ledgeway Group, a Lexington, Mass.-based market research and consulting company.

The three users have networks that incorporate equipment from multiple vendors, a situation that poses sticky support and service problems. For example, although AMD's worldwide network is primarily based on IBM's Systems Network Architecture, the 2,000 devices it connects include Digital Equipment Corp. minicomputers and IBM-compatible personal computers.

"The most difficult problem is for our people to understand the networks and hardware from all

See **Net** page 20

SL-1 USERS GROUP CONFERENCE

NTI moves worry SL-1 PBX users

BY BOB HAMEL
Senior Editor

CHICAGO — Changes in Northern Telecom, Inc.'s distribution and service strategy and future enhancements to its SL-1 private branch exchanges are among the key issues members of the National Northern Telecom SL-1 Users Group will be addressing at the group's annual conference here this week.

The 7-year-old group, which encompasses 17 regional organizations and boasts more than 1,100 members, is one of the largest users groups in the U.S. In a break from past practice, the group has invited vendors to exhibit SL-1-compatible wares during the conference, which is being held at the Chicago Hyatt O'Hare. More than 50 vendors are expected to exhibit.

SL-1 users contacted before the show by *Network World* said they are concerned about recent changes in Northern Telecom's sales and service strategy. In November, the company sold the Western region sales and service arm of its Integrated Office Systems (IOS) division to Pacific Telesis Group ("Northern sells off sales group," *NW*, Nov. 24). The following month, Northern Telecom continued its withdrawal from the direct equipment sales business with the sale of the Midwestern arm of the IOS division to Centel Business Systems ("Centel buys Midwest regional sales unit," *NW*, Dec. 22). Responsibility for support of SL-1 users in those regions was transferred to those companies.

Patricia Tobin, manager of voice communications for Boston College in Chestnut Hill, Mass., said she is worried that Northern Telecom will continue to sell off its distribution and service operations. "Northern Telecom has verbally committed to keeping our local branch open, but I'm concerned that, if the right offer came along, they'd take it," Tobin said.

Because Tobin is concerned that Northern Telecom may ultimately relinquish its sales and service operations in Boston College's region, she said she is preparing to handle maintenance chores herself. "I'd like to talk to people who have experience maintaining their own equipment," Tobin said.

Ted Speakman, manager of telecommunications for the Fred Hutchins Cancer Research Center in Seattle, echoed Tobin's concerns. Since November, Speakman has had to deal with Pacific Telesis personnel for service and maintenance.

"Even though we have Northern Telecom's product, we are dealing with someone in the middle, PacTel," Speakman said. "PacTel assures us nothing will change. They say we will get the same service, and in fact, the same people who were with Northern Telecom. But I am concerned about how this change will affect our service and maintenance."

The fact that 95 of the technicians that Pacific Telesis picked up from Northern Telecom are currently renegotiating their contract adds to Speakman's concerns. "I want to know what, if anything, Northern Telecom can do to help resolve the problems that PacTel is having," Speakman said.

Speakman said he wonders whether Pacific Telesis will keep Northern Telecom users up to date on new products and product upgrade information. "We are concerned about whether we will get the same input through PacTel as

See **SL-1** page 20

GUIDELINES

ERIC SCHMALL

Boiling it all down for the boss

After exhaustive research and analysis, in which all relevant factors are weighed and every alternative is investigated and properly documented, the report your staff has prepared is in final form.

Exhaustive in its clinical approach to the subject area and brilliant in its incisive conclusions, the report is destined to become a departmental milestone, the magnum opus of your career. Unfortunately, it will be largely unread by your senior staff audience. Hence, the critical need for the most important part of the report: the executive summary.

> Despite the fact that decision makers have an insatiable appetite for information, they abhor reading documents that approach the size and weight of the local phone directory.

Despite the fact that decision makers have an insatiable appetite for information, they abhor reading documents that approach the size and weight of the local phone directory.

Senior managers lack the time, inclination and technical ability to wade into the detail contained in these papers. But management is prepared to confront issues in a concise form: one clearly stating issues, problems, alternatives and solutions.

This one- or two-page summary, attached to the more massive report, gets attention and action.

Many communications managers have become proficient writers. In turn, they have learned to direct and coordinate technical writing from staff members. The manager's new focus in pursuit of executive summary preparation turns to editing.

The challenge of refining technical documentation has never been more difficult. The manager has to boil away excessive verbiage, pare away the embroidery and reveal the fundamental issues at hand. He must illuminate options and direct the reader to the unmistakable best choice.

The manager demonstrates his logic, which forms the fabric of the report. He describes the sound with which the proposed action will thump against the bottom line.

Understanding and clearly stating all of this in one or two pages demonstrates the value of the manager who can translate and transform information into proper decision making.

Schmall is network systems manager for an insurance holding company.

NTI worries SL-1 users

continued from page 19

we did through Northern Telecom. Will PacTel be as up to date? Will PacTel push Northern Telecom's products? How can PacTel know everything about all the products that they deal with? A Northern Telecom user wants to know about all the facets of the product," Speakman said.

Indeed, learning about upcoming products and enhancements to existing product lines is a key reason many users are attending the conference. Sal Conti, director of administrative services for the American Stock Exchange, said, "The technology is always changing and it's difficult to keep up with. We want Northern to define what's coming down the pike, especially with regard to Integrated Services Digital Network."

Speakman said he is looking for news on upcoming enhancements to the SL-1XT. "We're upgrading from an XL to an XT in August, and I'm interested in what Northern Telecom will be announcing," Speakman said.

Speaking about the vendors exhibiting at the conference, Gary Rea, manager of office and telecommunications services for Revco D.S., Inc. of Twinsburg, Ohio, said, "It's the first year we've had a full-blown trade show." Rea, who is also vice-president of the users group, said many of the exhibitors will be software vendors offering SL-1 compatible packages, such as automatic call distribution software. "This is the one show to go to, because everything will be SL-1 specific," Rea said. "Unlike other larger trade shows, users won't have to walk up to a vendor and say, 'Can your product work on an SL-1?' because in this show, it's a given."

George Hellyer, president of the association and operations supervisor for Tufts University in Medford, Mass., says the conference gives managers the opportunity to interact with other managers in their fields. "Users find it helpful to talk with other SL-1 users in their vertical markets, such as universities, law firms and hospitals," Hellyer said. "We're not only in telecommunications, we work in our particular business environments. One of the greatest advantages of this conference is that there is no other way to get this kind of peer-level contact."

The users group is sponsoring more than 20 workshop sessions, which according to Rea, "run the gamut from ACD to the role of the CIO." Hellyer said many well-known individuals in the telecommunications industry, including Helen Craley, a principal of Craley Associates and Merissa Mauro, sales representative, Midwest Region, of The Yankee Group, will lead workshops.

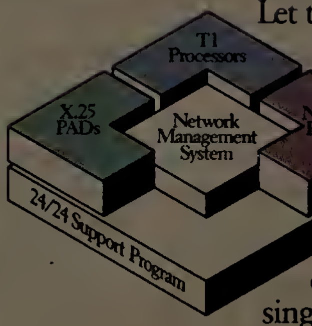
To Hellyer, the two-way communication between Northern Telecom and its users is one of the best byproducts of this conference. "It's a pipeline," said Hellyer. "Northern is interested in us because we are their market, and we are very eager to have input to Northern, so they can produce products that meet our needs." ◘

Keeping the net up

continued from page 19

these vendors," said Leo Craft, director of Information Systems for AMD, based in Sunnyvale, Calif. "It's ultimately my staff's job to solve any problem, so having multiple vendors, in terms of hardware or protocols, really creates some training problems."

Bank of the West's Data Network Supervisor Ronald Rushin agrees that it can be difficult to find employees who have both broad data communications skills and the ability to sit down with a room full of vendors and get beyond the finger-pointing. However, he insisted, "We need those skills in-house. I'd have a hard time giving that responsibility away to a sin-



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gle vendor when my job is on the line."

Rushin operates essentially two networks: One links the bank's 70 automated teller machines, and another ties together more than 400 terminals around the San Francisco Bay area. A system from Tandem Computers, Inc. sits between the two networks and also acts as a front end to an IBM host. Both nets use multidrop leased lines.

Craft and Rushin agreed that most vendors are willing to work together to resolve network problems. Both also said they place a high value on a vendor's ability to work with their internal technical teams to develop a network solution. Along these lines, Craft has seen a pleasant change in IBM's mode of operation.

"IBM has been known historically to propose only their solution, but we're starting to see a change," Craft said.

In particular, IBM has been working with Craft to resolve problems relating to redundant communications lines and support for sites with low data communications demands. "They recognize the need for coexistence. They're bringing in some of their technical people who understand TCP/IP and the competition's [equipment] environment," Craft said.

Rushin said he insists on a vendor contact "who sees our needs and can support us in the projects we undertake." On occasions when he hasn't been pleased with a vendor's representative, Rushin has asked for a new one. "We're pretty blunt about it," he admitted.

Rushin said most vendors are willing to work with him to find a representative who meets the company's needs.

Fault isolation is the biggest concern for S. James O'Hare, director of Information Systems for San Francisco's Golden Gate Bridge, Highway and Transportation District. Since his network is fairly small, O'Hare does as much service and repair work as possible in-house. "I think of the network as a series of pieces. It's our responsibility to figure out which of the pieces is at fault in such a way that the vendor can't deny it."

O'Hare stressed repeatedly that he'd like to see better diagnostic tools. "My main complaint is it takes so long to isolate faults. Any tool that can help you do that faster is a labor-saving device," O'Hare said. Both O'Hare and Rushin said they would like vendors to establish additional local service sites so turnaround time for equipment repairs would be shortened.

Since none of these managers has analyzed the exact costs of network downtime, it was hard for them to estimate how much money they would be willing to spend on diagnostic equipment to keep the network up.

However, Craft did note, "The fear of the network being down usually motivates us to pay nearly anything for some of this test equipment. I don't like that idea, but it's tough to place a dollar value on the network being up."

The inability to clearly pinpoint an intermittent network failure led O'Hare's group to spend several thousand hours reprogramming applications so they could recover from a failure.

Although O'Hare suspected the fault lay in the microwave system, "we never solved the problem," he said. Now, when a failure occurs, O'Hare is certain that only a single transaction has been lost, and he receives documentation on that transaction.

As Richard Munn, president and managing director of the Ledgeway Group observed, "The customer really is the service organization for the network, and vendors have to work with that organization." If the three network managers on the Ledgeway panel are representative of their peers, then the key role for vendors in net support is to provide tools and problem-solving expertise. ☐

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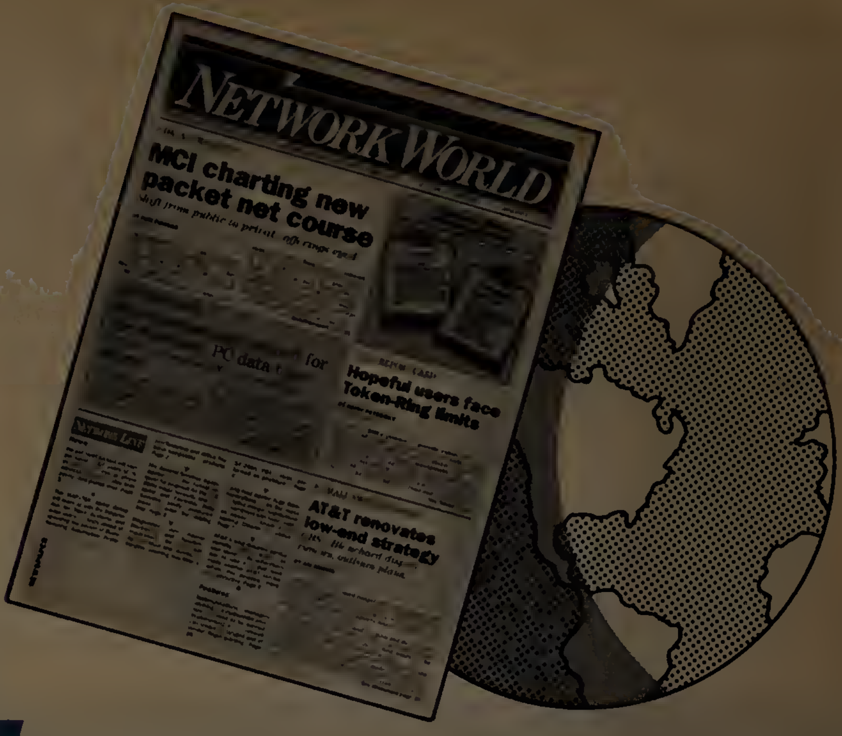

NETWORK WORLD
MCI charting new packet net course
Hopeful users face Token-Ring limits
AT&T renovates low-end strategy

The trend has never been clearer. Networking is now the major application market for communications. And a recent statement by Ken Olsen, President and Founder of Digital Equipment Corporation, substantiates this trend: "We have to start thinking of the computers as peripherals. You start with the network, then you hang the computers on later."

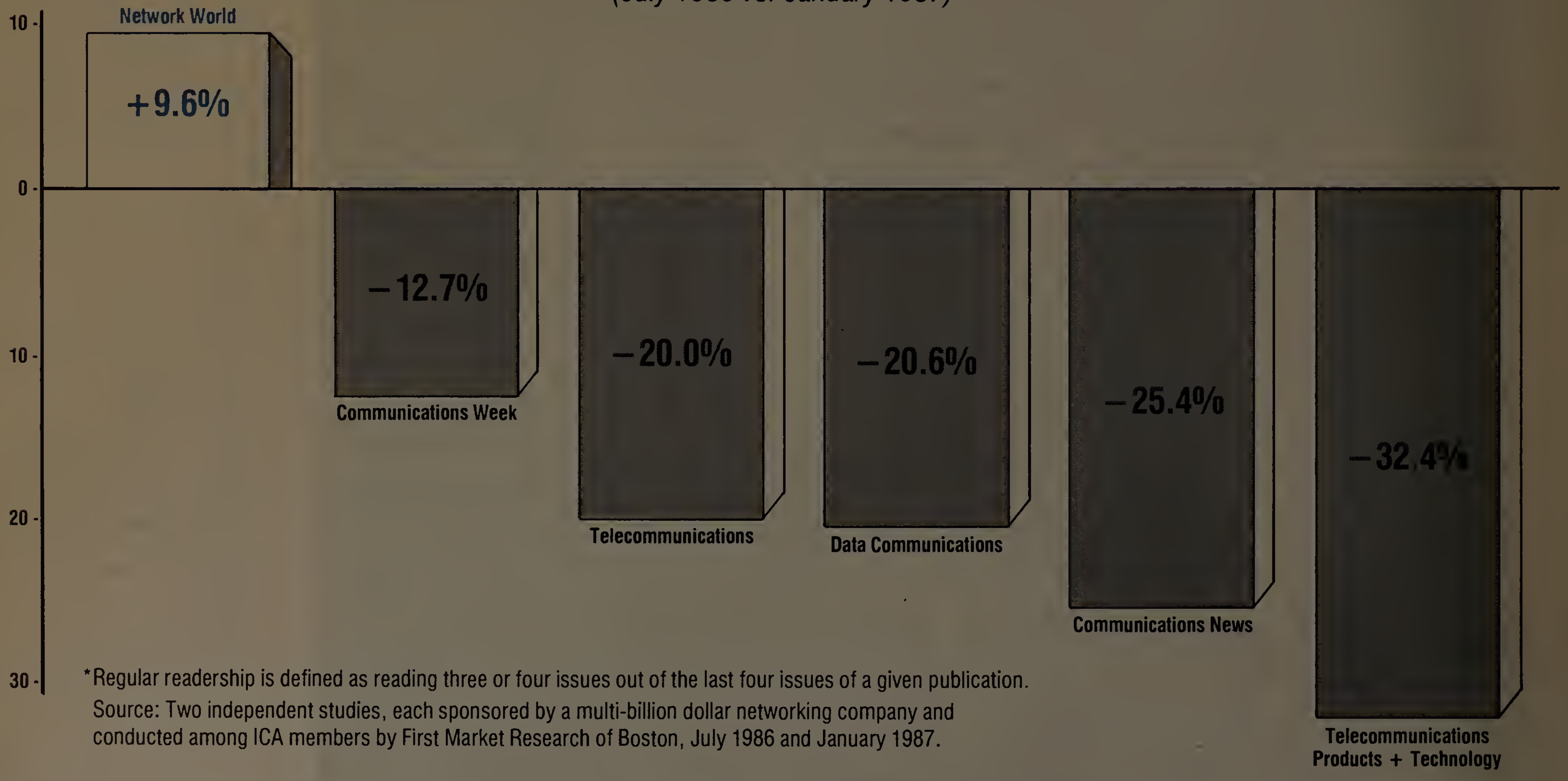
Networking. It's been *Network World's* focus from the very start. In fact, it is the *only* publication that covers the entire realm of communications from the networking point of view. And in doing so, *Network World* has established itself as the *standard* for communications users already networked or planning to network.

Today's users know they need up-to-date information in order to keep pace with the evolving world of networking. That's why they read *Network World.* And that's why *Network World* was the only publication to gain in regular readership in an independent study conducted among ICA (International Communications Association) members, some of the nation's most influential buying decision-makers for voice and data communications products and services.

The study, sponsored by a multi-billion dollar networking company and conducted in January 1987 by First Market Research of Boston, showed decreased readership of all communications oriented publications among ICA members since a previous study in July 1986. Only *Network World,* with its exclusive networking-oriented coverage, experienced an increase in regular readership. The percentage increase/decrease for each publication over that six-month period is displayed in the following chart.

Percentage Change in Regular Readership* among ICA Members

(July 1986 vs. January 1987)



*Regular readership is defined as reading three or four issues out of the last four issues of a given publication.
Source: Two independent studies, each sponsored by a multi-billion dollar networking company and conducted among ICA members by First Market Research of Boston, July 1986 and January 1987.

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NEW PRODUCTS AND SERVICES

See inside for:

- ▶Adacom's 3270 gateway
- ▶Develcon's Ethernet board
- ▶Biscom's PC-to-Fax unit

▶ *PROTOCOL COMPUTERS, INC.*

X.25 net switch doubles as PAD

Firm also debuts protocol converter.

BY JIM BROWN
New Products Editor

CALABASAS, Calif. — Protocol Computers, Inc. recently expanded its X.25 packet network offerings by introducing a packet switch that doubles as a packet assembler/disassembler. Also introduced were a terminal PAD, a host PAD and X.25 network management software.

The firm also announced a protocol converter that connects a mix of asynchronous terminal types to IBM's System/34, System/36 and System/38 minicomputers.

The SmartNet 3600 is a 24-port asynchronous switching PAD capable of supporting up to four 64K bit/sec X.25 network links. The Intel Corp. 80286 microprocessor-based device switches up to 100 packets a second and can be used to support asynchronous terminals, personal computers and hosts. A 200K-byte memory buffer supports asynchronous devices operating in higher speed block transfer mode.

The software-driven device supports routing tables, diagnostics, performance monitoring and a data base containing usage and performance statistics. It can be configured locally or remotely. The SmartNet 3600 supports local devices through RS-232-C interfaces or over three twisted-pair wires. It can also be connected to a central network operations site over leased or switched-line modems.

The SmartNet 3600 is available with two X.25 links and eight asynchronous ports for $6,150 and with four X.25 links and 24 asynchronous ports for $9,600.

Also introduced was the SmartNet 1300 terminal PAD. Used in IBM's Systems Network Architecture environments, the SmartNet 1300 supports three virtual circuits connecting terminals to mainframes or minicomputers over X.25 networks. It concurrently supports IBM's 3270 or 3770 SNA/Synchronous Data Link Control protocols, as well as IBM 5250-type data streams used to access System/34, System/36 or System/38 minicomputers.

At the host, the terminal PAD interfaces to either a host PAD or IBM's front-end processor-resident Network Packet Switching Interface. The unit will support up to three SNA/SDLC physical unit connections in either point-to-point or multidrop environments and transmits in full duplex at 9.6K bit/sec.

Supporting three SNA/SDLC ports, one X.25 link and one asynchronous diagnostic port, the SmartNet 1300 costs $3,200.

The SmartNet 1200 host PAD is used to connect terminal PADs to IBM mainframes or minicomputers. It features built-in diagnostics as well as SNA/SDLC and X.25 link speeds of up to 9.6K bit/sec. The asynchronous diagnostics port is used to access such SNA information as SDLC status, address and control bytes.

The SmartNet 1200 supports up to eight permanent or switched circuits to the host. It provides one X.25 link, one SNA/SDLC port and one asynchronous diagnostic port for $3,200.

The SmartView X.25 network management package runs on an IBM Personal Computer AT under the Xenix multitasking operating system. It accesses remote SmartNet 2000 or 3000 series processors via two asynchronous ports.

Capable of running unattended, the $1,750 package can update remote PAD and switch configurations while it collects performance data. It will compile call billing information, usage statistics and diagnostic data.

The company also announced the 5250/T protocol converter that connects up to seven asynchronous terminals, personal computers or printers to an IBM System/34, System/36 or System/38 minicomputer over distances of up to 5,000 ft. It is capable of providing 5250 emulation to 45 makes of terminals.

The 5250/T is priced at $4,950.

Protocol Computer, Inc., a subsidiary of Telematics International, Inc., is located at 26630 Agoura Road, Calabasas, Calif. 91302 (818) 880-5704.

▶ *COMWARE INTERNATIONAL*

Gateway acts as link to remote minis

BY JIM BROWN
New Products Editor

SAN JOSE, Calif. — Comware International recently released a gateway enabling IBM Personal Computers, local network-attached devices and asynchronous terminals to access remote IBM System/36 or System/38 minicomputers.

The ComGate gateway package runs on an IBM Personal Computer AT. It connects to the host over an IBM Synchronous Data Link Control adapter board and appears as a group of IBM 5294 terminal cluster controllers. The system will allow up to 16 terminals or printers to simultaneously access the host.

ComGate makes IBM 3162 or 3163 asynchronous terminals appear to the host as IBM 5251-11 terminals attached to an IBM 5294 controller. An ASCII printer attached to the IBM 3162 or 3163 terminal can also emulate an IBM 5256 printer. Terminals can directly attach to the device at speeds up to 19.2K bit/sec or be connected remotely with modems at 2,400 bit/sec.

Personal Computers running the firm's ComTerm 5250 terminal emulation package connect to the host through ComGate and appear as an IBM 5251-11, 5291 or color 5292 terminal. ComGate also supports IBM's Network Basic I/O System, allowing up to 16 local net-attached Personal Computers to access a ComGate residing on the same local net.

When used in packet-switched network environments, ComGate can act as a terminal packet assembler/disassembler and support 16 concurrent sessions on each of two 64K bit/sec network links.

A system administrator can configure ComGate to limit users to certain ComGate functions by requiring a password.

A ComGate system supporting eight host sessions costs $9,500, while a 16-port version costs $13,500.

Comware International is located at 3477 Rancho View Court, San Jose, Calif. 95132 (408) 923-4139.

▶ *ACC*

Firm offers PBX link to VAX minis

BY JIM BROWN
New Products Editor

SANTA BARBARA, Calif. — Advanced Computer Communications Co. recently introduced an interface that allows up to 23 asynchronous terminals to connect to a Digital Equipment Corp. VAX minicomputer through a private branch exchange supporting AT&T's Digital Multiplexed Interface (DMI).

The VAX-resident Advanced Communications Processor (ACP) 6640 links to the PBX's DMI interface over three sets of twisted-pair wire at T-1 speeds of 1.54M bit/sec.

The dual-board Unibus-compatible interface performs front-end processing as well as the T-1 serial processing for 23 asynchronous data channels. The ACP 6640 also supports on-board self-diagnostics and loop-back testing.

Terminals supported by the ACP 6640 appear to the VAX as if they were connected to autoanswer modems. The VAX/PBX link can range up to 1,310 ft. Each full-duplex terminal connection operates at up to 19.2K bit/sec.

Terminals can transfer files with the VAX, access VAX data bases and receive full-screen editing capabilities.

The ACP 6640 currently supports the Unix System V operating system. The firm said it plans to add support for Berkeley Software Distribution's Unix 4.2 and DEC's VMS operating systems.

DMI is supported on AT&T's System 75 and System 85 PBXs. One of the two ACP 6640 boards processes DMI-generated bit streaming, High Level Data Link Control and bit-oriented signaling protocols.

By acting as a port-contention device, a PBX will allow up to 200 terminals to vie for the 23 data channels supported by the DMI, the firm said.

Beta testing for the ACP 6640 begins this spring at an AT&T facility, the company said. It will reportedly be in production this summer.

Although the pricing for the ACP 6640 has not been finalized, a company spokesman estimated it would cost roughly $10,000.

ACC is located at 720 Santa Barbara St., Santa Barbara, Calif. 93101 (805) 963-9431.

Products & Services

3270 gateway, printer link introduced

Adacom Corp. announced a gateway linking personal computers and ASCII terminals emulating IBM's 3270-type terminals to an IBM cluster controller. The firm also introduced an add-on board that links personal computers to a mainframe-attached printer.

The multiport **LG-708** Local Coaxial Gateway links 16 devices to IBM 3174 and 3274 cluster controllers. It provides access to the mainframe for 3270 coaxial terminals, workstations and remote personal computers that use the firm's CP-101/401 along with Digital Communications Associates, Inc.'s Irma board.

The LG-708 also provides a mainframe link for ASCII printers emulating an IBM 3287, ASCII terminals emulating an IBM 3278, as well as devices attached to local-area networks, wide-area networks and private branch exchanges.

The **Adaprint/PC** Micro-to-Mainframe Printer Link is an IBM Personal Computer interface card that makes a personal computer-attached printer look and act like an IBM 3287 host printer used in Systems Network Architecture and Binary Synchronous Communications environments.

The card attaches directly to an IBM 3174/3274 Type A coaxial printer port. Host printouts can be stored in an MS-DOS disk file and can be printed later. The host computer can access the printer even while the personal computer is running other applications.

The LG-708 is priced at $7,490, and the Adaprint/PC is priced at $790.

Adacom Corp., 8871 Bond St., Overland Park, Kan. 66214 (800) 327-0232.

Add-on board accesses Ethernet nets

Develcon, Inc. introduced an add-on board that allows its DevelNet data switch to access Ethernet networks supporting the Transmission Control Protocol/Internet Protocol.

Designated the **Model 7182/TCP**, the board supports asynchronous access to TCP/IP networks at up to 220K bit/sec. It can be installed in any DevelNet node and will provide a TCP/IP gateway for up to 64 virtual circuits. The card can be controlled and configured from the operator's control console like other DevelNet interface cards.

The 7182/TCP supports multiple sessions per user, which permits DevelNet and Ethernet users to connect with two or more resources simultaneously. The card provides operating statistics for network management, including total Ethernet packets transferred, total characters transferred, collisions, packet-alignment errors and cyclic redundancy check errors.

The 7182/TCP gateway is priced at $5,000.

Develcon, Inc., Suite E, 6701 Sierra Court, Dublin, Calif. 94568 (415) 829-6200.

Facsimile device integrates with existing data nets

Ricoh Corp. introduced an asynchronous digital facsimile transceiver that can be integrated into a company's existing private data network.

The **Rapicom 2100** can be simultaneously connected to a private data network and the public telephone network. It can link to nearly all statistical multiplexers, switching multiplexers and asynchronous X.25 packet assembler/disassemblers by emulating an ASCII terminal. It is reportedly compatible with CCITT standard G3, G2 and North American standard G1 facsimile machines.

Calls from either network are answered automatically. Operators select the desired network for transmission by pressing a single key. Transmitting through its internal 9.6K bit/sec modem, the Rapicom 2100 is able to send average documents through telephone lines in 15 seconds, according to the company.

The price of the Rapicom 2100 begins at $5,000.

Ricoh Corp., Rapicom Communications Products, 5 Dedrick Place, West Caldwell, N.J. 07006 (201) 882-2000.

PC-to-facsimile unit doubles as printer buffer

Biscom, Inc. introduced a stand-alone unit that allows personal

How Wells Fargo leveraged T1 for expansion.

"A part of the rationale in building our network was to position ourselves for expansion," says Bill Stout of Wells Fargo. "It would facilitate our expansion, whether by opening new offices or as the result of the acquisition of another financial institution."

1986 was a year of rapid expansion for this highly successful bank. Fortunately, it already had its N.E.T. IDNX network in place by the time its largest acquisition was announced.

How Wells Fargo positioned itself for additional connectivity requirements.

After the acquisition, Wells Fargo found itself with two additional and complete data centers that had to be integrated with their own private network—a normally complicated task that had to be completed within a tight time frame.

Their N.E.T. network gave them the ability to fully integrate their acquisition's data centers from day one.

How?

"It was a function of the relative ease of expandability and flexibility of the backbone network we had in place," Stout explains. "It was relatively simple to order IDNX equipment and T1 facilities, and have both of these positioned so that we could provide immediate connectivity."

With the T1 network in place and the IDNX to channel capacity on demand, Wells Fargo was spared inordinate amounts of time and expense for building individual application connections.

Says Stout, "Our network did a lot to keep us in front of our users' needs last year."

Products & Services

computers to transmit directly to CCITT Group III facsimile equipment or act as a local printer buffer.

The **Faxcom 1000 Fax-Communicator** connects to both the personal computer and to a regular telephone.

Because the device looks like a printer to the personal computer, users type the print command to send data to the unit. A switch controls whether that data goes to a 50-page printer buffer or to a telephone line.

The device features letter-quality transmission and, according to the company, provides up to 10 times the quality of normal facsimile transmission.

The Faxcom 1000 Fax-Communicator costs $2,995.

Biscom, Inc., 2 Courthouse Lane, Chelmsford, Mass. 01824 (617) 441-0010.

Desktop communications, file server introduced

Harris Corp. introduced a desktop unit that acts as a file and communications server for a mix of ASCII terminals, personal computers and remote job entry terminals.

The **Desktop 9300**, a downsized version of the firm's 9300 network communications system, supports up to eight users.

Acting as a communications server, it allows attached devices to access mainframes by providing emulation of IBM's Systems Network Architecture, Binary Synchronous Communications, SNA 3270, remote job entry, ASCII and SNA Distribution Services LU 6.2 protocols.

Acting as a local-area network file server, the Desktop 9300 will also run multiuser applications supporting IBM's Network Basic I/O System and DOS 3.1. These applications include electronic mail as well as data base management packages.

Prices for the Desktop 9300 begin at $7,595.

Harris Corp., National Accounts Division, 16001 Dallas Pkwy., Dallas, Texas 75248 (214) 386-2299.

Board acts like IBM 3278/79 Emulation Adapter

Avatar Technologies, Inc. unveiled a personal computer board that performs the same micro-to-mainframe link functions as IBM's 3278/79 Emulation Adapter

The half-sized **PA100G** uses standard Type A coaxial connections to link an IBM Personal Computer or compatible to an IBM 3174 or 3274 cluster controller or to a 4300 series display/printer adapter.

The board works in conjunction with either IBM's host-based 3270-Personal Computer file transfer package or with Avatar's own host file transfer software.

The PA100G runs with the entry-level IBM 3279 emulation program and Version 2.0 software, as well as Avatar's 3270 emulation program software.

The product replaces Avatar's existing PA100 and PA100 Turbo micro-to-mainframe links.

The PA100G is priced at $479 and will be available in early May.

Avatar Technologies, Inc., 99 South St., Hopkinton, Mass. 01748 (617) 435-6872.

Local fiber-optic multiplexers introduced

Fibronics International, Inc. introduced two fiber-optic multiplexers designed to operate with its IBM-compatible fiber-optic local backbone cabling system.

The **FM 1500** and **FM 1508** Cable Bandit data multiplexers are designed for local, building or campus environments, and they enable connection of IBM 3270-type devices to IBM 3174 or 3274 cluster controllers over fiber-optic, coaxial or twisted-pair cable.

The FM 1500 supports up to 32 peripherals and will support 32 3274 controller channels or four multiplexed 3174 channels.

The FM 1508 supports up to eight 3270-type devices and will connect to eight channels on a 3274 controller. It will also transmit four multiplexed 3174 channels to an FM 1500, which will demultiplex them into 32 channels. Both units feature internal port and link diagnostics.

The FM 1500 ranges in price from $2,200 to $2,800, while the FM 1508 ranges from $1,000 to $1,400.

Fibronics International, Inc., Communications Way, Independence Park, Hyannis, Mass. 02601 (617) 778-0700.

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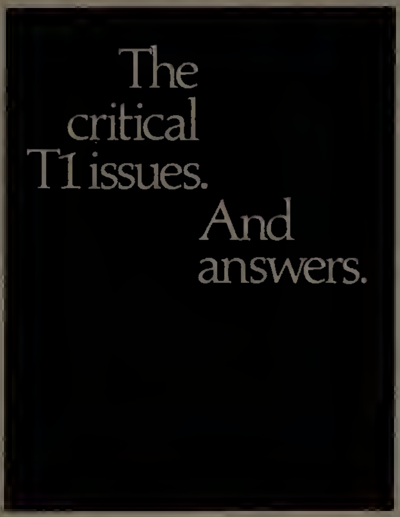

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Opinions

THE ISSUE

Deregulation: Will it produce true competition for long-haul services?

PRO:

BY WILLIAM J. BAUMOL
Special to Network World

Regulation today may be the prime inhibitor of true competition in long-haul services. For this reason, deregulation of carriers will only enhance the long-distance industry.

Historically, regulation has tried to protect individual competitors at the expense of true competition. It has prevented healthy firms from competing effectively, while protecting those enterprises that by virtue of ineptitude, technological circumstances and the burden of the past were not the most efficient suppliers.

Regulation constrains AT&T far more strictly than the other long-distance carriers. AT&T alone continues to be subject to rate-of-return regulations and is burdened with justifying the cost of its proposed rates.

The Federal Communications Commission has severe doubts about its regulatory policy. It has issued a notice of proposed rulemaking on the subject and has requested comments on how regulation of AT&T services can best be modified or reduced.

The long-haul telecommunications arena includes a profusion of AT&T competitors, such as MCI Communications Corp. and US Sprint Communications Co. The Bell operating companies' clean separation from this market has proven elusive, and deregulating the BOCs in the long-haul market has even been proposed by the Department of Justice.

Certainly, on the intrastate level, there is strong competition between the BOCs and the long-haul carriers, and this rivalry has spilled over these bounds.

Beyond that, a small army of resellers add competitive pressures that automatically undermine cross-subsidies. Though it is claimed that the resellers are dying out, statistics don't appear to confirm this. In any event, firms can quickly and easily reenter this activity if reappearance of cross-subsidies were to make that profitable.

With so much rivalry already in the picture, the elimination of handicapping and uneven regulation can only further unleash the forces of competition.

Despite the current financial difficulties of MCI and US Sprint, there is good reason to believe that these companies can be competitive. Their financial problems are attributable, in good part, to their current heavy outlays on plant and equipment. In addition, current regulatory rules have forced AT&T to adopt prices that make matters difficult for MCI and US Sprint, and that, presumably, is why MCI has called publicly for the deregulation of AT&T.

Also, it is generally recognized that technological advances have eroded the old natural monopoly. Even the bottleneck facilities of the local telephone companies now face the threat of bypass.

Satellite technology makes it possible for one long-distance carrier to invade any overpriced route of another without incurring any heavily sunk investment such as once might have

See **PRO** page 27

Baumol is a professor of economics at Princeton University and director of the C.V. Starr Center for Applied Economics at New York University. He has been a consultant to AT&T for more than 20 years.

CON:

BY LEE L. SELWYN
Special to Network World

The divestiture and deregulation of AT&T and its former Bell operating companies are related to the extent that both terms begin with "d"; beyond that, however, the connection gets fuzzier.

The eight companies that constituted the old AT&T have tried hard to convince policymakers that deregulation is a natural consequence of divestiture. But the idea that the breakup ended their historic monopolies in local and long-haul services is a perversion of the principles of the Modified Final Judgment, under which the breakup was implemented.

When AT&T was divided into eight parts, the market it had dominated was essentially apportioned into eight segments, which were assigned to each of the eight surviving companies.

Thus, Nynex Corp.'s dominance of the local telephone service market in New York and New England is no different than AT&T's dominance in these areas prior to divestiture. Basic service in Boston can no more be supplied by Pacific Telesis Group after divestiture than it could have been by GTE Corp. prior to divestiture.

Similarly, the granting of interlocal access and transport area services to the new AT&T didn't fundamentally alter its historic dominance in that market. Yet, in theory, it allowed other inter-LATA carriers, such as MCI Communications Corp. and US Sprint Communications Co., to gain access to the local exchange carriers' networks.

However, the Modified Final Judgment's "equal access" requirement came at a cost to AT&T's long-haul competitors. Prior to divestiture, these carriers paid considerably less for the "inferior" local access arrangements they received than was implicitly being paid by AT&T. Today, with equal access still not fully implemented, the other common carriers still pay lower average access costs. The difference, however, has become increasingly small each year.

Most observers fail to recognize that access discounts for the other common carriers conferred an economic benefit that more than offset the negative effect of their so-called inferior access.

As has now become apparent, the ability of the other common carriers to charge less than AT&T was directly attributable to their access service discounts. Indeed, some of their prices are now higher than AT&T's.

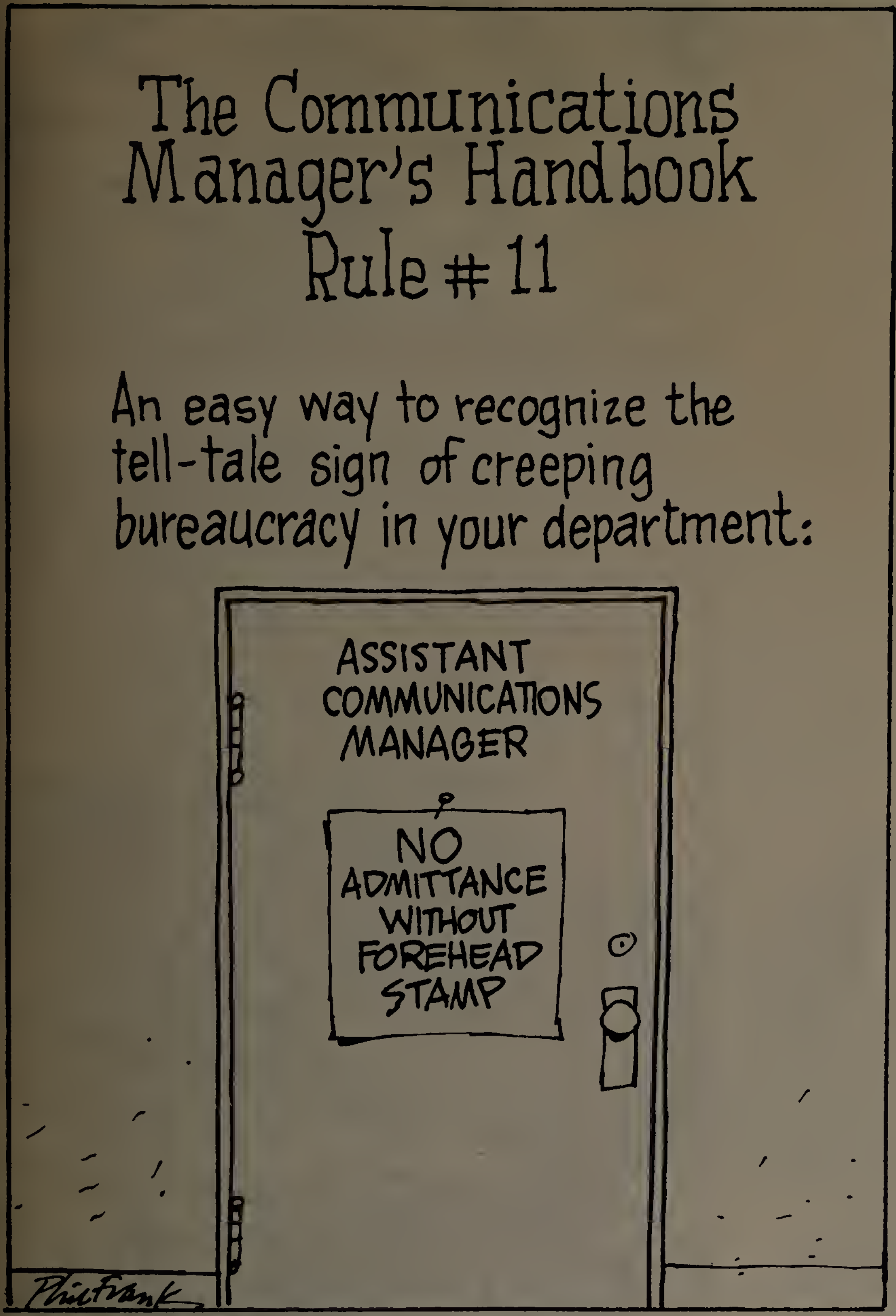
But AT&T's long-distance rates have dropped by some 30% since 1984. Does this prove competition's effectiveness in lowering prices? Hardly. Every penny of AT&T's postdivestiture toll-rate reductions was a result of Federal Communications Commission regulation and not a competitive reaction by AT&T.

The rate changes are attributable to three FCC actions: its adoption of access-charge policies that shift costs to fixed monthly end-user charges; its requirement that AT&T pass its carrier access-charge reductions on to its long-distance customers; and its ruling to reduce the rates of return for AT&T and the BOCs, thereby lowering toll rates and underlying access charges.

Each of these policies could

Selwyn is president of Economics & Technology, Inc. in Boston.

Opinions


The Communications Manager's Handbook
Rule #11
An easy way to recognize the tell-tale sign of creeping bureaucracy in your department:
ASSISTANT COMMUNICATIONS MANAGER
NO ADMITTANCE WITHOUT FOREHEAD STAMP
PhilFrank

have — and indeed should have — been adopted even under conditions of franchised monopoly. The erosion of the other companies' access charge discounts, coupled with the regulation-induced AT&T price reductions, brings into question whether significant competition can survive AT&T and the BOCs' overwhelming dominance of the broad market.

Deregulation of dominant carriers cannot change the cost conditions confronting their fringe competitors. Nor can it alter the strategic control of basic-access switching and transport infrastructures that resulted from a century-long, government-sanctioned monopoly.

While few doubt that deregulation would benefit AT&T and the BOCs, none have shown how such a fundamental policy change will benefit anyone else. Contrary to current evidence, competition can survive in the long-haul telecommunications market if deregulation and other "free the BOC" policies are soundly rejected.

They are costly and potentially dangerous, and they tinker with one of our nation's strongest and most valuable economic assets.

PRO from **page 26**

been necessary. Fiber optics offer scale economies even to the smaller among the common carriers.

Equal-access technology eliminates the product quality disadvantages of particular firms. In short, technology no longer dictates that a single firm will have inherent cost or other advantages over a multiplicity of suppliers.

Indeed, anyone who believes otherwise automatically casts doubt on the wisdom of competition in long-haul telecommunications. If it were true that a single supplier is, in the long run, unbeatable because it can offer cheaper and better service through scale economies and other related advantages, then the public must be shortchanged by the existence of many suppliers. Competition, of course, is not detrimental to the public interest.

It is clear that regulatory constraints, unevenly imposed, can easily prevent competition from working. What better way to deny the community the benefits of competition than to inhibit the competitive activities of some of the most qualified participants in the market process?

LINKUP AMERICA

WALTER ULRICH

Fowler's welfare foul-up

Federal Communications Commission Chairman Mark Fowler recently unveiled a plan to subsidize telephone costs for low-income subscribers. To fund this program, called Linkup America, he proposes making increases in monthly subscriber line charges.

The plan has excellent intentions, but its funding mechanism places an unfair tax on telephone subscribers. It also puts an unfair burden on the Bell operating companies by putting them in the position of having to administer the program.

Monthly subscriber line charges are already being increased in an effort to bill the customer for the cost of connecting long-distance telephone service to the local telephone network. The line charges themselves are sound economics: They attempt to match the charges of various telephone services with their costs. Monthly subscriber line charges are expected to increase from $2 to $3 in June of 1987, and they could increase again to $4 during the summer of 1988.

However, political pressures are likely to limit line charge increases to less than $4. The funds to support Linkup America would come from these increases.

Objective is worthy

The goal of Linkup America is laudable: universal phone service. About seven million U.S. homes do not have telephones, often because they can't afford them. For those low-income subscribers that presently have phones, the planned increases in subscriber line charges will make it even more difficult for them to afford telephone service. Without a program such as Linkup America, these people will be cut off from essentials such as the police, the fire department and emergency medical services.

The problem with Linkup America is its funding mechanism. However flawed U.S. social policies may be, the Congress has already developed a series of social programs, and subsidization of telephone service for the poor should be handled within that framework.

The FCC estimates that Linkup America would cost several hundred million dollars annually. The FCC has enough problems without trying to administer a social service program. Further, the prospect of overcharging one group of consumers to subsidize another group is preposterous. That's like suggesting that certain food buyers be charged a few pennies more at the grocery store so that other, less well-off consumers can pay discount prices at the same store.

That kind of Robin Hood thinking creates hidden taxes, is impractical to administer and perpetuates economic distortions such as the imbalance that already exists between local and long-distance prices. Such artificial pricing also encourages uneconomic business behavior and undermines the system of supply and demand. Linkup America is a bad precedent to set — one that is inimical to the free enterprise system.

Alternative answers

Universal telephone service is a worthwhile and achievable goal, for which there are many alternative methods.

Many telephone companies currently offer or are implementing low-cost life-line services for low-income families. Telephone companies could also ask for donations for the poor, as the power companies do, or the Congress could approve telephone stamps, which would be similar to food stamps. Charitable organizations could step in and fill the gap.

There is a plethora of welfare programs and social services. The Congress establishes social services policy, sets priorities and develops funding, primarily from general tax revenues.

If every government agency were permitted to set separate welfare agendas, citizens would face economic strangulation from thousands of small, hidden taxes.

The goals of Linkup America make sense. Unfortunately, Linkup America is a bad program. What's worse, it's bad policy for the FCC to suggest funding for social service programs by penalizing consumers and carriers of communications services.

Ulrich, a partner in Coopers & Lybrand, manages the firm's Walter Ulrich Consulting subsidiary in Houston.

NETWORK WORLD

Features
April 20, 1987

FEATURE FOCUS

Big Bang's aftermath

How London's largest financial net cleared the trading floor

From page 1

be "Big Whimper," the technology could not afford to fail.

The events leading to Big Bang began in 1983, when the London Stock Exchange agreed to loosen certain trading restrictions under pressure from the UK government. The London financial markets were feeling competitive pressures from New York and Tokyo, which were threatening to overtake London in importance.

Changes that Big Bang sought to effect included removing restrictions on foreign ownership of UK financial firms, abolishing fixed commissions and enabling the same firm to act both as market maker and trader. (The market maker provides the bid/offer price and selling price for an issue and often maintains an inventory of certain issues.)

In preparation, financial institutions made massive investments in new London offices, staff and information systems, with particular emphasis on the "front office," or the price display and trading systems. The technology investment was primarily defensive: It was essential for competing on equal terms, but was not expected to provide any sustainable competitive advantage over other financial markets.

Information technology, before and after

Before Big Bang, most dealing in UK equities and government securities took place on the Stock Exchange floor. The broker would walk onto the floor and obtain quotations from those market makers trading in the desired stock whose prices were displayed on the side of their trading booths.

After a bargain was struck, the details would be recorded on the broker's back-office settlement system. This data would eventually be transmitted to the exchange's Talisman central clearing and settlement system. This system matches details of buyers and sellers and the deals they have made.

See **Bang** page 30

Bye is director of vertical marketing and consultancy for Unisys Network Services Worldwide in London; Lunn is a senior consultant for Clark Whitehill Management Consultants in London.

THE STOCK PHOTO BANK

Bang from **page 28**

For central price gathering, stock exchange staff would collect details of market makers' current prices and enter these via floor terminals connected to the main exchange pricing system. The information was made available to subscribers via Topic, a videotext-based price display system. Topic terminals are located all over the city in the offices of financial institutions.

With the advent of electronic trading, market makers would no longer be in close proximity on the exchange floor but would be communicating electronically from separate remote offices. To ensure a fair market and stimulate competition, the exchange developed a new central price-gathering system, Stock Exchange Automated Quotations (SEAQ), providing marketmakers with equal access to online stock prices and other data. SEAQ takes price input information from these and many other sources, including the National Association of Securities Dealers Automated Quotations for selected U.S. stocks.

On the output side, SEAQ provides various price-display services. For example, a subscriber can select a stock, obtain price and volume data on the latest three trades and find which market makers made these deals. The price-display system is available via the Topic videotext terminals or as a digital feed via the exchange's computer readable services (CRSLINE).

The digital feeds are designed for output to computer systems that can analyze and reformat the data for customized presentation at locally connected terminals. The analog information feeds, such as Topic and other videotext systems in general, are used for passive display of less volatile information.

For Big Bang, most of the exchange's systems development concentrated on the SEAQ price gathering system and CRSLINE, although Topic and Talisman continued in use after the changeover. At the time of Big Bang, Topic was 6 years old and had 10,000 subscribers.

This made the exchange a major provider of financial information services, competing in the lucrative market with other major suppliers such as Reuters and Dow Jones Information Service Group.

As a result of these system requirements, the network in place at Big Bang was essentially a star configuration, with the exchange systems at the center and connections to individual trading systems in user organizations.

User approach to Big Bang

While Big Bang presented a major challenge to the Stock Exchange, it posed an even greater challenge to many of the financial institutions. In some cases, new organizations had been formed by the merger of a merchant bank with a brokerage firm and a market-making firm. The technical strategy was inevitably influenced by organizational and cultural factors, supplier compatibility and the relative level of technology in each firm.

Although many companies tried to approach the technology in the context of an overall information systems plan, strategic considerations tended to evaporate as the deadline neared. The emphasis was naturally on getting the dealing systems ready.

A major decision for users was whether to buy an off-the-shelf system and modify it or to develop a turnkey system wholly tailored to individual user requirements. In several cases, this decision was finalized only months before Big Bang, usually in favor of a custom trading system based on fault-tolerant hardware.

A typical dealing-room system consists of a high-speed local-area network of dealer workstations. This is connected to a main processor, which acts as a communications server into the wide-area network, providing access to the exchange systems, the company's own settlement and clearing system, and its corporate network, if one exists. Most firms planned to move their trading staff into their own dealing rooms, while maintaining a limited presence on the exchange floor.

> A typical dealing-room system consists of a high-speed local-area network of dealer workstations.

The actual event

Following a full-scale dress rehearsal on Oct. 18, at which the SEAQ data gathering and Topic pricing systems held up well, the big day finally arrived with champagne breakfasts to celebrate the new era.

However, optimism was premature; problems arose with the increased load on the aging Topic display system, which was now required to function as a more active information source. First day curiosity and a fourfold increase in access to certain pricing pages doubled the system load and Topic crashed at 8:30 a.m.

SEAQ was suspended also, to deny an advantage to those users who got their price information from sources other than Topic. The system was off the air for more than an hour. The next day saw a half-hour crash when a Stock Exchange housekeeping operation was conducted while the NASDAQ feed was transmitting bulk start-of-day prices.

Such teething troubles are not entirely unexpected in large, complex real-time systems, especially with limited realistic testing possibilities. The Big Bang experience does reinforce the importance of developing comprehensive test beds before cutover of major networks. It also illustrates the absolute and strategic importance of information systems and networks in the modern financial services environment.

The other Big Bang changes went relatively smoothly. The need for an efficient regulatory environment was highlighted by insider trading scandals. However, the principle of electronic trading was rapidly accepted, and the exchange floor was quickly abandoned. As Gordon Macklin, president of the National Association of Securities Dealers, remarked in a recent Unisys Corp. seminar, the predictions that this would happen by the end of the 1980s were wrong; it has happened sooner.

Directions in financial networks

Big Bang was a traumatic experience for the London markets, but it was only one stage in the continuing revolution in financial services. A major trend in the financial community is the globalization of financial markets; Big Bang was a step in this direction. Major banks must operate globally to maintain their market share of large multinational corporate business.

This globalization leads to greater competition and blurring of the distinctions between traditionally different types of financial organizations. Although Big Bang primarily concerned investment banking, some of the players are also active in retail banking. For example, UK clearing banks are engaged in both areas and have large branch office networks of up to 3,500 outlets.

These emerging financial supermarkets must provide a variety of interconnections to be fully competitive. These would vary within each country of operation but will include, for example, networks of automated teller machines and pooling arrangements with other banks.

Other facilities, such as electronic funds transfer at point of sale, together with home and office banking, have not yet been widely accepted by UK consumers. If these services do take off, there will be significant networking implications. The previous ad hoc development of individual financial services networks would have to be replaced by a more systematic approach if future growth is to be cost-effective.

Global strategic networking

Globalization uses information technology as a strategic weapon, not merely as a technical support service. In any distributed environment, information systems can help a company generate business as an essential element of the service delivery system.

At the heart of this lies communications, with the strategic key being access to other systems. It is communications that enables markets to become global, with the day's trading moving easily between Tokyo, London and New York. Indeed, there is no reason why markets should be geographically placed at all; electronic trading removes the need for a market floor. NASDAQ has already proven this, and Big Bang underscores it.

Individual banks and other institutions using stock exchange services must integrate their systems with the exchange. As we have seen, each user system forms an end point in the exchange network via a gateway. A global bank will need a corporate network to link the nodes in each of its main financial centers. The next step will be the integration of the front-office dealing systems with the back-office settlement and support systems within the user system running at each node. The latter category was largely neglected in preparing for Big Bang.

Recent developments, including Big Bang, have contributed to a fundamental change in the way information processing is viewed. In the past, the approach was defensive. It regarded information processing as a technical service, automating processes that were no longer possible manually. The new offensive approach now regards information processing as a means of generating new business. It has become a marketing instrument. As deregulation encourages greater competition, this tendency becomes more marked.

This approach places a considerable strain on information processing and requires a new view of networks as the center of a corporation's business. The applications are servers on the network, which is generally application-independent; it is not aware of the user's type of business.

However, there are users groups that have specific requirements within a general communications framework, for example, airlines and banks. This vertical market approach is applicable to a variety of markets, particularly the financial one.

A key decision is whether to invest in a private network or to use an existing international value-added network as the corporate backbone network. This is clearly an appraisable business decision, but there are obvious strategic advantages in owning a private corporate network. It becomes a vital part of the company infrastructure and a major strategic resource. It is a distinctive asset with enormous potential for value-added services, including resale of spare capacity to third parties if security considerations permit.

In general, ownership of a corporate network will influence many key business decisions in a multinational company, such as determining where to establish service, inventory and manufacturing locations.

As the Big Bang experience proved, the development of such sophisticated telecommunications systems makes significant challenges to corporate MIS management. The increasing importance of communications will doubtless come to be reflected more and more in MIS organization structure. ☐

Product Focus: Microwave

Through hail, sleet or snow...

Digital microwave systems deliver the data in any weather.

BY JOHN J. HUNTER
Contributing Writer

As carrier line charges go through the roof, the telephone companies have been slow to provide high-capacity services such as T-1 lines, and many network managers are looking for alternatives for carrying voice and data. Plenty are available — including infrared, lightwave, satellites and digital microwave — and all have their strong and weak points. But for short-haul applications in relatively adverse atmospheric conditions, digital microwave is the most reliable and cost-effective solution.

Digital microwave is not affected adversely by such things as smoke, as is the case with infrared transmission, nor is it burdened with right-of-way problems, which arise with lightwave systems. And while satellites will permit longer distance transmissions than are economically attainable with digital microwave, satellites require third parties to provide transponder space and switching facilities to route information to users.

Hunter is president of TMS Corp., a marketing management consulting firm in Devon, Pa.

Oren Scheller, a senior consultant with the accounting firm of Coopers & Lybrand in Houston, is a specialist in common carrier alternatives. "Infrared is suited for line-of-sight, point-to-point applications. It's easy to install, and it requires no FCC license for operation," he says. "On the downside, infrared is limited to distances of about one mile, and since transmissions employ laser technology, fog and smoke can cause excessive transmission errors.

"Lightwave transmission employs fiber-optic cable and provides almost unlimited bandwidth," Scheller says. "However, users need right-of-way approval to bury cable or run it beside the telephone lines, and the cost of fiber-optic cable is still high — about three or four times more than coaxial cable. Also, transmission over fiber-optic cable is limited to about four miles without the use of repeaters."

Digital microwave

Digital microwave radios are a popular bypass alternative for users who need high bandwidth to transmit voice and data between 30 and 40 miles, but this alternative does require a Federal Communications Commission license. The licensable frequencies are 2 Ghz, 4 GHz, 6 GHz, 10 GHz, 11 GHz, 18 GHz and 23 GHz. Commercial users are controlled by FCC Parts 21 and 94 rules, while the common carriers fall under Part 21.

In major urban areas, the least crowded frequencies are in the 17.7 GHz to 19.7 GHz range (collectively called 18 GHz) and the 21.2 to 23.2 GHz range (known as 23 GHz). Transmission distance is determined by the operating frequency and power of the microwave unit. The 2 GHz to 10 GHz units are suitable for between 10 and 40 miles, while the 18 GHz and 23 GHz bands are good for 10 and five miles, respectively. "Users can increase the transmission distances by adding repeaters," says Jeff Akers, product manager for AT&T Network Distribution Systems in Morristown, N.J., "but the cost can run almost 80% of the price of two radios. Aside from the repeater, two antennas are involved."

Digital microwave offers a wide range of transmission facilities. Users can select from units providing T-1 (1.544M bit/sec), T-2 (6.312M bit/sec) and T-3 (44.736M bit/sec), broken down into multiple

☞ See **Microwave** page 32

Microwave transmission

Vendor	Product	Transmission frequency range	Controlling agency	Transmission capacity (bit/sec)	Number of voice channels	Modulation technique	Occupied bandwidth	Bits per hertz	System gain	Receiver sensitivity	Price
AT&T Morristown, N.J.	DR-18	17.7 GHz to 18.14 GHz 19.26 GHz to 19.7 GHz	FCC Parts 21 and 94	44.73M	672	MSK	40 MHz	1.12	100 dB at 10-6 BER	-77 dBm at 10-6 BER	$40K to $65K
	DR-23	21.2 GHz to 23.6 GHz	FCC Parts 21 and 94	1.544M or 6.312M	24 or 96 standard; 48 or 192 optional	AM	10 MHz	0.65	97 dB at 10-6 BER (for T-1); 90 dB at 10-6 BER (for T-2)	-83 dBm at 10-6 BER (for T-1); -76 dBm at 10-6 BER (for T-2)	$13K to $20K
Avantek, Inc. Milpitas, Calif.	DR2D-192	1.7 GHz to 2.3 GHz	FCC Parts 21, 94 and Government	12.75M	192	QPR-7	3.5 MHz	3.7	110 dB at 10-6 BER	-80 dBm at 10-6 BER	$55K
	DR23A	21.2 GHz to 23.6 GHz	FCC Parts 21 and 94	1.544M	24 or 96	FSK	25 MHz	NA	96 dB at 10-6 BER	NA	$120K to $130K
Aydin Microwave Division San Jose, Calif.	AD-4	4.4 GHz to 5.0 GHz	Army	Up to 18.72M	300	QPSK	10 MHz	2	114 dB at 10-6 BER;	-80 dBm at 10-3 BER 112 dB at 10-8 BER	$30K to $40K
California Microwave, Inc. Sunnyvale, Calif.	TXR-182BA	17.7 GHz to 19.7 GHz	FCC Parts 21 and 94	45M	Varies with multiplexing technique	QAM	20 MHz	2.25	88 dB at 10-6 BER; 86.5 dB at 10-8 BER	-69 dBm at 10-6 BER	$12K to $25K
Digital Microwave Corp. San Jose, Calif.	DMC-23	23 GHz	FCC Parts 21 and 94	1.544M or 6.312M	24 or 96	NA	21.29 GHz to 23 GHz	0.25	97 dB at 10-6 BER (for DS1); 90 dB at 10-6 BER (for DS2)	-83 dBm at 10-6 BER (for T-1)	$25K
Harris Corp., Farinon Division San Carlos, Calif.	DVM-2-45	1.85 GHz to 1.99 GHz	FCC Part 94	45M	672 or 1,344	64QAM	10 MHz	4.5	104 dB at 10-6 BER	-71 dBm at 10-6 BER	Contact vendor
	Urbanet-10	10.5 GHz	FCC Parts 21 and 94	6.312M	96	QPR	2.5 MHz	2.6	88 dB at 10-6 BER	-83 dBm at 10-6 BER	Contact vendor
Loral Terracom, Inc. San Diego, Calif.	TCM 620	1.74 GHz to 19.79 GHz	FCC Parts 21, 74, 78 and 94	1.544M to 44.736M	24 or 48 depending on multiplexing technique	4PAM or 3LPR	1.7 GHz to 19.7 GHz	1.6 with 4PAM; 1.1 with 3LPR	NA	-76 dBm at 10-6 BER for 18 GHz	Contact vendor
M/A-Com, Inc., MAC Division Chelmsford, Mass.	MA23DR	21.2 GHz to 23.6 GHz	FCC Parts 21 and 94	1.544M or 6.312M	Varies with multiplexing technique	FSK	12 MHz	1	81 dB at 10-6 BER; 75 dB at 10-8 BER	-81 dBm at 10-6 BER (for T-1)	Contact vendor
Motorola, Inc. Schaumburg, Ill.	Starpoint D-2000	2 GHz	FCC Part 94	12.35M	96 or 192	7LPR	10 MHz	1.3	106 dB at 10-6 BER	-72.5 dBm at 10-6 BER	Contact vendor
	23 HDP	23 GHz	FCC Parts 21 and 94	6.312M	NA	2FSK	29 MHz	0.22	175 dB at 10-6 BER	-80 dBm at 10-6 BER	Contact vendor
NEC America, Inc. Fairfax, Va.	DMR-69-119-135MB	6 GHz or 11 GHz	FCC Part 21	135M	2,016	64QAM	30 MHz at 6 GHz; 40 MHz at 11 GHz	4.5	102 dB at 10-6 BER for 6 GHz; 97.7 dB BER at 10-6 BER for 11 GHz	-69 dBm at 10-6 BER for 6 GHz; -72.5 dBm at 10-6 BER for 11 GHz	$100K to $120K
Northern Telecom, Inc. Atlanta, Ga.	RD-6	6 GHz	FCC Part 21	135M	2,016	64QAM	23 MHz	4.5	101 dB at 10-6 BER	-75.5 dBm at 10-6 BER	$35K to $41K
Racon, Inc. Seattle, Wash.	Micropass 7015	21.2 GHz to 23.6 GHz	FCC Parts 21 and 94	6.312M	96	NA	33.8 MHz	2	172 dB at 10-6 BER	-65 dBm at 10-6 BER	$16.9K to $20.7K
Rockwell International Corp., Collins Microwave Division Dallas, Texas	MDR-2306	5.9 GHz to 6.4 GHz	FCC Part 21	135M	2,016	64QAM	30 MHz	4.52	101 dB at 10-6 BER; 99 dB at 10-8 BER	-68 dBm at 10-6 BER	$34K to $47K

AM = Amplitude modulation
BER = Bit error rate
FSK = Frequency shift keying
LPR = Level partial response
MSK = Minimal shift keying
NA = Not available
PAM = Pulse amplitude modulation
QAM = Quadrature amplitude modulation
QPR = Quadrature partial response
QPSK = Quaternary phase shift keying

SOURCE: TMS CORP., DEVON, PA.

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T-1 circuits and DS-X data carrying capacity. The transmission technique uses time-division multiplexing to segment the bandwidth and employs the familiar T-1 DS0 64K bit/sec channelization to parcel out time slots to each input. A DS1 channelization scheme, used with T-1, has 24 DS0s, while a DS2, or T-2, consists of 96 DS0s. T-3 uses a DS3 and consists of seven DS2s.

License to send

Any company can operate a digital microwave radio if it has an FCC license. "Getting a license is not difficult if you follow certain procedures," says Mike Hayden, chief of the FCC's Microwave Division. "Users must perform a frequency analysis to ensure their operating frequency does not interfere with anyone else and fill out FCC Form 402 to provide us with information concerning the transmitting and receiving sites, transmitter power, transmitter operating frequency tolerance and other information."

A frequency analysis requires detailed knowledge of current frequencies in use and those proposed and therefore is better left to companies specializing in that area. While all vendors say they will perform frequency analysis for their customers, most subcontract it out to outfits like Spectrum Planning, Inc. in Richardson, Texas. After users file Form 402 and pay the $135 application fee, Hayden says it typically takes between 40 and 60 days to get a license.

Site survey

Before installing a digital microwave radio, the user must conduct a site survey to determine whether anything will interfere with the transmission. Obvious inhibitors are obstructions like buildings, trees and hills. Less obvious are mirrored buildings, rivers and lakes, which can cause wave reflection problems. The site survey also considers atmospheric conditions such as the frequency and intensity of rain, fog, snow and humidity, as all can cause excessive transmission errors. The lower the transmission frequency, the less effect atmospherics will have; higher frequencies like 23 GHz have problems with rain, particularly downpours.

Most vendors have computer programs that can be used to calculate the effects of factors such as transmission length, power, weather and free-space transmission loss on signal fading and resulting errors.

"The complexity of site surveys depends on the communications distances. For 23 GHz, it's pretty much line-of-sight evaluations, since the distances are pretty short," says Frank Ravest, product marketing manager for Northern Telecom, Inc.'s microwave equipment, "but longer distances take a lot more work since all obstacles aren't that apparent."

None of the vendors charge for a site survey, as long as the user buys its gear; otherwise, users shouldn't be surprised if

See **Microwave** page 35

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1 My primary areas of activity. (Circle ONE only)
I am involved in evaluating communications (data, voice and/or image) products and services:
1. for *use within my own* company/organization
2. for *resale* to other companies/organizations
3. Both
4. Other (explain) ______________________

1a For communications, my primary responsibility is: (Circle ONE only)
1. Data Communications
2. Voice Communications
3. Both
4. Other (explain) ______________________

2 Circle only the ONE title classification which most applies to you.

Company Management
- 11. Chairman, Pres., Owner, Gen. Mgr., Partner, Director, CEO, VP, Dir. Head of Finance, Admin. Procurement

Communications Management

Data Communications
- 21. Management
  VP, Dir., Mgr., Head, Chief: Data Communications, including Networks, Engineering, Design, R&D, Application Development
- 22. Supervisory/Staff:
  Supervisor, Head: Networking, Design, Analysis, Engineering, R&D, Applications, Services

Telecommunications
- 31. Management
  VP, Dir., Mgr., Head, Chief: Telecomm., Voice Comm., including Networks. Engineering, Design, R&D, Application Development
- 32. Supervisory/Staff: Supervisor, Head: Networks, Design, Analysis, Engineering, R&D, Applications Services

Factory Communications
- 41. Management
- 42. Supervisory/Staff

MIS/Data Processing
- 51. Management
  VP, Dir., Mgr., Head, Chief: MIS/DP, Systems Application Development, Operations, Office Automation
- 52. Supervisory/Staff: Supervisor, Head of Systems Design, Analysis Applications

Others
- 75. Consultant
- 80. Educator
- 85. Financial Analyst
- 90. Marketing/Sales
- 95. Other ______________________

3 Job Function
Which one of the following best describes your functional involvement with communications (data, voice, and /or video) products? (Circle ONE only)

Corporate
- 1. Business Management, Planning and/or Development

Communications System/Network
- 2. Management, Planning and/or Development
- 3. Implementation and/or Operation
- 4. Other ______________________

4 Which one of the following best describes the primary business activity of your organization at this location? (Circle ONE only)

Consultants
- 11. DP/Communications Consulting Services
- 12. Consulting Services (except DP/ Communications)

End Users
- 13. Manufacturer (other than computer/communications)
- 22. Finance/Banking/Insurance/Real Estate
- 23. Education
- 24. Medicine/Law
- 25. Wholesale/Retail Trade
- 26. Public Utility/Transportation
- 27. Mining/ Construction/ Petroleum Refining/ Agriculture/ Forestry
- 28. Business Services (excluding DP/Communications)
- 29. Government: Federal
- 30. Government: State/Local

Vendors
- 41. Carrier: including AT&T, BOCs, Independent Telcos, Public Data Networks, International Records Carriers
- 42. Interconnect
- 43. Manufacturer Computer/Communications Equipment
- 44. Value Added Reseller (VAR), Systems House, Systems Integrator
- 45. Distributor
- 46. DP/Communications Services (excluding consulting)
- 95. Other ______________________

5 In which ways do you typically become involved in acquiring communication products (data, voice, and/or video) and services? (Circle ALL that apply)
1. Recommend/Specify
2. Identify/Evaluate Potential Vendors
3. Approve the Acquisition
4. None of the Above

6 Check ALL that apply in columns A and B.
A. I am personally involved in the acquisition process (specification, selection, approval) for the following products and services:
B. These products and services are presently in use at this location:

A B Product/Services

Computers
- 01. ☐ ☐ Micros
- 02. ☐ ☐ Minis
- 03. ☐ ☐ Mainframes
- 34. ☐ ☐ Printers

Data Communications
- 04. ☐ ☐ Communications Processors
- 05. ☐ ☐ Comm./Networks Software
- 06. ☐ ☐ Digital Switching Equipment
- 07. ☐ ☐ Facsimile
- 08. ☐ ☐ Modems
- 09. ☐ ☐ Multiplexers
- 10. ☐ ☐ Protocol Converters
- 11. ☐ ☐ Network Mgmt. & Control
- 12. ☐ ☐ Test Equipment
- 13. ☐ ☐ 3270 Controllers
- 35. ☐ ☐ Intelligent Terminals

Telecommunications
- 14. ☐ ☐ PBXs
- 15. ☐ ☐ Key Systems
- 16. ☐ ☐ Central Office Equipment
- 17. ☐ ☐ Integrated Voice/Data Terminals

A B Product/Services

Transmission/Network Services Equipment
- 18. ☐ ☐ Microwave
- 19. ☐ ☐ Satellite Earth Stations
- 20. ☐ ☐ Local Area Networks
- 21. ☐ ☐ Wide Area Networks
- 22. ☐ ☐ Packet Switching Equipment
- 23. ☐ ☐ Fiber Optic Equipment
- 36. ☐ ☐ T1

Communications Services
- 24. ☐ ☐ Packet Switching Services
- 25. ☐ ☐ Cellular Mobile Radio Services
- 26. ☐ ☐ Electronic Mail
- 27. ☐ ☐ Enhanced Services
- 28. ☐ ☐ Centrex
- 29. ☐ ☐ Long Haul Services
- 30. ☐ ☐ BOC Services
- 31. ☐ ☐ Independent Telco Services

Other
- 32. ☐ ☐ Factory Communications
- 33. ☐ ☐ Online Data Bases

7 Estimated value of communications systems, equipment and services:
A. which you helped specify, recommend or approve in *last 12 months?* (Check only ONE in column A.)
B. which you plan to specify,recommend or approve in *next 12 months?* (Check only ONE in column B.)

A B
- 1. ☐ ☐ $10 million and over
- 2. ☐ ☐ $5 million - $9.9 million
- 3. ☐ ☐ $1 million - $4.9 million
- 4. ☐ ☐ $500,000 - $999,999
- 5. ☐ ☐ $250,000 - $499,999

A B
- 6. ☐ ☐ $100,000 - $249,999
- 7. ☐ ☐ $50,000 - $99,999
- 8. ☐ ☐ Under $50,000
- 9. ☐ ☐ Don't Know

8 Estimated gross annual revenues for your entire company/institution: (Circle ONE only)
1. Over $1 billion
2. $500 million to $1 billion
3. $100 million to $499.9 million
4. $50 million to $99.9 million
5. $10 million to $49.9 million
6. $5 million to $9.9 million
7. under $5 million

9 Estimated number of total employees at this location: (Circle ONE only)
1. Over 5,000
2. 1,000 - 4,999
3. 500 - 999
4. 250 - 499
5. 100 - 249
6. 50 - 99
7. 20 - 49
8. 1 - 19

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BY JEFFREY ROTHFEDER
Special to Network World

Employees of American Express Co. can expect to be listened to — but perhaps not in the way one might think. At hundreds of customer service sites around the world, employee telephone usage and conversations are monitored around the clock for responsiveness.

The company wants to know how long it takes employees to pick up the telephones and provide service and answers. Their tone, courtesy and the accuracy of information passed on to customers are also evaluated.

A touch of George Orwell's *1984* in 1987? Perhaps. But the increased service performance provided to customers more than makes up for the "Big Brother" image of call monitoring systems, also known as automated call distributors, or ACDs.

Its call monitoring system is the key to American Express' ability to provide a high level of service to its customers. Without this system, achievements such as the firm's impressive record of quickly replacing lost or stolen credit cards would have been impossible.

American Express has constructed an elaborate schema of human and machine interaction to monitor employee call time, which is the firm's main link to its customers.

A series of Galaxy Call Distributors from Rockwell International Corp. scan American Express' telecommunications network. Every 30 seconds, the distributors check the frequency and length of incoming and outgoing calls and how quickly each employee answers those calls.

The data is sent daily to the supervisors' terminals, where it is analyzed. A report is then sent to the company's communications managers and on up the management ranks to James D. Robinson III, the chairman and chief executive officer of American Express.

"The real value of this is that

☞ See **Listening** page 34

Rothfeder is a free-lance writer based in Wyckoff, N.J.

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it gives us the ability to put human resources where we need them when we need them," says Edwin Sherin, vice-president of operations at American Express. Sherin helped lead a drive for call monitoring in the early 1970s.

Quality assurance supervisors also listen to a sampling of service representatives' telephone conversations and assess their efficiency by checking the same data that the representatives are using to respond to customers. Performance reports are used for weekly feedback sessions that focus on how well each staffer is doing his job.

"We listen to a statistically significant sample of employees' phone conversations," Sherin explains, "so that in addition to one-on-one feedback from employees, we are also able to report, with some certainty, how well we're delivering services."

American Express' use of call monitoring systems to ensure a high degree of productivity is just one example of a growing phenomenon. Such far-flung companies as Pacific Southwest Airlines, the Kaiser Permanente Medical Care Program and Ohio Bell scan the telephone talents of their employees to ensure that the quality of their performance never flags.

Many companies do not monitor telecommunications as extensively as American Express. Rather than listening to telephone conversations, they perform detailed analyses of employee phone usage over time.

More than one-third of the nearly 20 million Americans who work at computer terminals and telephones are currently monitored. Further, according to Michael Smith, professor of industrial engineering at the University of Wisconsin-Madison, by the year 2000, 50% to 75% of the estimated 50 million employees who use computer terminals and telephones will be monitored.

Call accounting offerings

A typical call monitoring, or accounting, system costs from $6,000 to more than $100,000, depending on the number of telephones and the user's communications architecture. Over 200 companies currently sell call monitoring devices and software, and many of these are new, unestablished firms. Users should be wary of slick comeons which may have no substance.

In addition, even the best systems can fall behind in the rapidly changing telecommunications industry. "Companies selling call accounting systems are always aiming at a moving target," says Duff Mich, president of the RTP Group, a San Diego-based telecommunications consulting firm.

"It seems that these days PBX formats change and the data base of tariffs and communications providers is altered monthly. It's hard to keep up with all of this in a volatile market, and that is exactly what call accounting systems must do if they are to perform their function well over time," he says.

"Strong and unwavering maintenance and support from the providers of these systems is essential or you'll be purchasing a new system every year or two."

A leader in the market for call monitoring devices is Nashville-based Telco Research, a Nynex Corp. subsidiary. The firm's TRU telecommunications tracking system uses an IBM Personal Computer XT or AT to monitor and analyze each workstation's call traffic as it passes through the PBX. Supervisors have access to real-time data the moment the computer retrieves it.

Even more important for managers are the reports the system compiles over time. Detailed usage data for each employee is culled, including the time and date of every call, the numbers called, call duration and cost, as well as a breakdown of so-called exception calls (calls that are not job-related or exceed a specified duration or cost).

Other, more generic call traffic data is also generated, such as the number and duration of incoming and outgoing calls each hour at every workstation. The result is the telecommunications version of an audit trail that depicts the daily activities of every employee.

Uniquely advantaged

Call monitoring systems and the data they generate provide a keenly accurate portrait of a company and its employees that is unavailable through any other means.

"Communications is the best reflection of a business, better than any financial statement," says John A. Guerrieri Jr., a Washington, D.C. communications consultant who has installed numerous call monitoring systems. "Accountants can cover things up endlessly, but nothing is hidden when telephone usage is analyzed.

"By just understanding the kinds of information we get from a call accounting system, we can learn more about why a company is successful than by interviewing everybody in the whole firm," he says.

For instance, suppose a semiconductor supplier frequently delivers faulty chips to an electronic components manufacturer, but not often enough for anyone to notice. A communications manager, monitoring telephone usage with a call accounting system, could detect this problem because of the sudden increase in telephone calls from the manufacturing firm's service department to the chip supplier.

"In the process," Guerrieri says, "the communications manager has actually spotted a quality control problem long before management is able to see it. That's a good use of information, and it's what a communications manager ought to be doing."

Another example is the case of a miserably disorganized major department store chain that was having problems approving customer credit.

When a customer attempted to charge a purchase at peak hours, the salesperson keyed in the account number, and the central computer rejected it. The salesperson then attempted to call the credit department, which was located at corporate headquarters, but the company tie lines were almost always busy.

"It would be a comical situation if it was a Laurel and Hardy movie, but it was a disastrous situation for the retailer," says Duff Mich, the consultant who was called in to solve the problem. "Customers were literally ripping up their credit cards and throwing them away right in the store."

Before offering any advice, Mich used a call accounting system to measure average call duration on the tie lines each hour. "We knew that the length of these calls should be standard throughout the day," Mich says. "Instead, during busy hours, the average call duration went from about 1½ minutes to over three minutes."

Terminal mess

Mich then visited the credit department and found a mess: Ten credit authorization terminals were lined up on the opposite side of the room from about 20 employees' desks. To authorize a transaction, credit authorizers had to walk across the room and wait for a terminal to become available. Then they would return to their desks with the information.

"This system — as ridiculous as it was — was acceptable during nonpeak hours because there were fewer calls coming through for authorization and fewer authorizers at their desks," Mich says. "But during peak hours with the huge number of calls arriving at the credit department and more staff in place fighting for the 10 VDTs, it was entirely unworkable."

To solve the problem, Mich recommended putting terminals on employees' desks, turning telephone ringers off so they wouldn't distract other employees, adding an around-the-clock manager to supervise and troubleshoot, and installing a call sequencer to let employees know which call to take next. The resulting increase in productivity would obviate the need for extra employees during peak hours, according to Mich.

These recommendations were implemented, and the retailer's problems went away immediately. The call accounting system directed Mich to the problem, which then could be quickly solved.

Monitoring abuses

Unfortunately, for all the success stories from communications managers who use call monitoring systems wisely, there are numerous tales of managers who misuse system data to peek into the work habits of employees. This strategy invariably backfires.

Monitoring systems that are used to harass employees only lower morale and reduce performance. If the number of customer problems solved over the telephone is important for meeting organizational goals, then it makes sense to analyze this facet of an employee's work. However, it makes little sense to count in excruciating detail the number of personal calls an employee makes.

"Personal telephone calls are not a huge problem and are not worth wasting a lot of technology and management time," says American Express' Sherin.

"Sure, you'll find a couple of offenders, but you're better off not monitoring everybody for this and putting in special measures and restrictions," he says. "Then the use of call accounting systems becomes overbearing, and it hurts, rather than helps employee response."

Adds a communications manager at American Can Co., who asked not to be identified, "It shouldn't take technology to solve the problem of employees who are talking to their friends about soap operas on the telephone. That's a management problem.

"Too often, communications managers allow the automated collection of information to become a substitute for eye contact and management intuition about employee work habits," he says.

The key to effectively using a call monitoring system begins with implementing it fairly and honestly. According to Penny Todd, a telecommunications manager at Kaiser Permanente in Los Angeles, if employees understand management's expectations and are trained well, they don't mind being monitored as long as no capricious punishment is attached to the process.

When used as a tool for feedback and not as a means of invading privacy, monitoring systems are perceived by employees as an educational device that helps them do their jobs better.

Take it to the top

To be effective, the data generated by call monitoring systems must also be objectively reported to senior management.

"When you first get information from these systems, you usually blanch because you often find telephone usage problems you weren't aware existed that are embarrassing and unsatisfactory," Sherin says.

"But it's critical that management have the fortitude and integrity to analyze this data and pass it on to those above without coloring the facts. The first time you change the data received from these systems to fit the way you would like it, it's all over. You've then developed a belief within the organization that the numbers are untrustworthy and useless."

Call monitoring systems provide an essential service by offering information that is only available through a studied analysis of the corporate telecommunications environment. When implemented without discretion, these systems can make the communications manager look like a featherbedding spy and collector of useless information.

But when used wisely, they can enhance the communications manager's image from that of a technical manager to a mover who can isolate and address the problems confronting the corporation.

Microwave from **page 32**

they get billed. "We charge $1,000 per end for a 23 GHz survey and $6,700 for both ends of an 18 GHz long-distance 'shoot' if the company doesn't go with us," says AT&T's Akers.

Most other vendors were noncommittal about the site-survey charge question, giving the "it all depends on the situation" dodge, but don't look for any altruism, except perhaps from MCI Communications Corp. Ron Procino, MCI's senior manager of technical support and services, states that his company levies no site-survey charge, regardless of the outcome of the sales effort. Is MCI looking to be taken, or is the company that sure of itself? "We haven't had a case where a customer did not go with us after we did the survey. But then, private microwave systems haven't been a large part of our business so far," Procino says.

The site survey also takes into consideration other factors that might stymie the installation of a microwave system. Building owners may object to what antenna mounting will do to the roof, and some local ordinances prohibit antennas altogether. Local opposition to microwave by environmental or citizens groups must also be considered. Users should be sure that the vendor they choose will represent them in dealing with such opposition, which can be time-consuming and litigious.

What, me bypass?

The question of when to bypass the local telephone company can be answered by need and economics. If a user needs change to the point where current carrier facilities are inadequate or too expensive, bypass may be the solution.

T-1 transmission facilities, for example, have been a tariffed offering for almost four years, and still some customers have to wait six to 12 months for installation — if they can get it at all. Not every local operating company office offers T-1, and some that do have technically incompetent installation and support staffs.

For most users, however, the decision to bypass is economic. That was the case at the State University of New York (SUNY) at Buffalo. According to Jim Whitlock, manager of network systems for the school, the long-term cost projections for terrestrial facilities prompted the move to microwave radio.

Prior to installing an AT&T DR-23 digital microwave radio about three months ago, SUNY Buffalo was using three Dataphone Digital Service and five voice-grade 3002 lines to carry data between two campuses in Buffalo and another located half a mile away. The cost was incredible and things didn't look much better for the future, especially since the school was running out of bandwidth. "We began investigating private microwave in mid-1985 when we figured our current lines would cost between $45,000 to $50,000 per year by 1987. We needed T-1 but were quoted $4,000 a month [in 1985], so we decided bypass was a better alternative."

Whitlock went with AT&T — even though its DR-23 is a renamed Digital Microwave DM-23 — because of past experience with AT&T gear and AT&T's technical support. SUNY Buffalo's DR-23 is a fully redundant T-2 unit, with an optional Lightwave System for carrying data over fiber optics to the communications hub (the Lightwave unit adds about $50,000 to the base price of $280,000).

Says Whitlock, "To get a comparable T-2 transmission facility, we'd have to pay between $140,000 to $180,000 per year, so we figure a two-year payback if we only continue sending data. We're also looking at putting voice on, and that will save another $120,000 by getting rid of the tie lines and Centrex we're using."

The only complaint Whitlock registered about the DR-23 was that its remote diagnostics and control facilities are limited. AT&T is working on enhancements, but it's taking longer to implement than Whitlock would like. "They have some bureaucratic problems at the lower levels, and that's slowing things down," he says.

They'd rather switch

Buffalo Telephone Co. also made the switch to microwave for economic reasons. "We had about 45 C-1 conditioned lines for transmitting internal data, and we needed more capacity," says Kurt Spangler, director of operations. "We were paying $25,000 per month for those lines, and it didn't make economic sense to add more. We even looked at T-1, but that wasn't cost-effective either."

Spangler's network consists of locations up to 21 miles apart, so Buffalo Telephone looked for a unit that could handle short and long hauls. The company settled on the Harris Corp.-Farinon Division Urbanet-10 because it offered transmission facilities in the 2 GHz and 10 GHz ranges and was the most cost-effective unit proposed. Spangler says he is fairly happy with the system and its support, but he is disappointed with its channel-handling capacity, which is limited to 96 channels at 2 GHz and 72 channels at 10 GHz.

The last mile

Most users will opt for letting a common carrier handle their long-distance transmission needs. They'll do this by either tying their microwave into a local telephone company and letting it feed the data to the common carrier or by bypassing the local telephone company and directly interfacing with the carrier's point of presence (POP). If the latter alternative is chosen, it might require the customer to mount an antenna on the carrier's roof and place multiplexing equipment at the POP site.

According to Northern Telecom's Ravest, all carriers require an expensive M13 multiplexer to reduce a DS3 signal to T-1. "If the user has to add his own M13, the price will run about $13,000 per end; for T-1 microwave, however, no M13 is needed since the signal can terminate with the carrier's gear directly."

MCI's Procino claims that DS3 microwave can terminate into their M13 at no charge. "If we don't have an antenna available, we'll charge for mounting space and for waveguides to run the data to our M13. But we don't bill for using it." AT&T will allow users to terminate into its M13 but charges for it, or customers can furnish their own antenna and multiplexer, and they are billed for space usage and power. US Sprint Communications Co. could not be reached to determine its policy on POP termination.

In summary, given the continued escalation of leased-line costs, it's surprising more companies haven't turned to digital microwave. According to Ken Bosomworth, president of International Resource Development Corp., the 18 GHz and 23 GHz microwave market was $60 million in 1986 and is projected to be $85 million in 1987. Since most new users will find it easier to get a license in the less-crowded 18 GHz and 23 GHz frequencies, that's the prime growth area. However, demand hasn't been strong. One reason could be a lack of user awareness.

Some vendors have not been aggressive in marketing their products and many run advertisements that don't stress benefits, ease of use and paybacks. Many users also fear that they'll have to add a microwave expert to their staff, and they don't want that expense. However, current microwave units are solid state and bulletproof in terms of component failure, so problems are infrequent. And all vendors offer maintenance contracts that are a lot less expensive than the tariffs users are paying now.

Internet E-mail debuts

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work. Sorensen used 1,200 bit/sec dial-up links between each network and found no compatibility problems in sending messages between any of the networks.

The program allows the exchange of simple messages, as well as messages containing extractions of ASCII files and messages that include up to 10 attached DOS files. DOS files can use standard DOS formats, including binary files, Lotus Development Corp. spreadsheets and executable programs.

Another beta user, Peter Carayannakis, senior systems analyst for Ontario Hydro in Toronto, found the program to be awkward in saving attached files to local storage. "It would be nice if there was an easier way to store attached files in the mailbox to local storage," he said. According to Sorensen, "One portion of it is a little tricky, but once you understand it, it's easy to use."

Messages are exchanged between file servers designated as "post offices." Each post office supports up to 150 "mailboxes" designated for users. A single keystroke allows the user to pop up the program, which runs as a background application. Carayannakis said he likes the flexibility of this pop-up capability.

Multiple post offices can communicate, but the number of users that can simultaneously access the program depends on how many sessions the file server can support simultaneously.

Users can exchange messages across different networks by entering the name of the person they wish to reach instead of a precise network address. This is accomplished by exporting address lists from one post office to another. An address-searching feature that works on the local server allows users to locate addresses or a name knowing only a portion of the complete address.

Other program features enable network administrators to minimize the cost of exchanging messages long distance by restricting message transmission in order to take advantage of lower nighttime telephone rates. Messages can also be grouped together to be exchanged in bulk mail transfers. To send messages immediately, authorized users can override these parameters by selecting a high-priority delivery.

The program is also capable of storing long-distance telephone rate tables to compute the cost of individual calls, enabling net administrators to track costs.

One requirement of the internetwork version of the program is a good understanding of DOS and network operating systems, according to Carayannakis. "To set up external post offices, the system administrator has to know the networks."

Later this year, Consumers Software plans to release a follow-up product that allows users in the field to dial into a local network to access their mailboxes and use all of the capabilities available to users directly connected to the network.

Remote Dial-in Courier, which will be available by the end of June, will work in conjunction with Internetwork Courier. Remote users will gain access to the post office through a password. The program will also allow users to update the network's most current address list remotely.

Consumers Software also said it plans to enhance other gateway capabilities for the product later this year.

The Internetwork Courier is priced at $995 per file server and is available now. It requires 128K bytes of random-access memory in the server. An upgrade package for existing Network Courier installations is available for $300.

The Network Courier, which is available through several different channels, is resold by AT&T, Tandy Corp., Sytek, Inc., Xerox Corp., Univation, Western Digital Corp. and Tiara Computer Systems, Inc. It is compatible with NETBIOS-compatible networks from IBM, Novell, Inc., 3Com Corp., Proteon, Inc., Banyan Systems, Inc. and Ungermann-Bass, Inc.

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TANDEMCOMPUTERS

Known for the Company We Keep

Contel seeks escape

continued from page 1

board of directors to work out a mutually satisfactory termination agreement.

COMSAT Vice-President and General Counsel Willard Nichols responded with a letter that stated Contel's reasons for ending the agreement were insufficient.

"In the event that COMSAT does not concur in your request to terminate the merger agreement by mutual consent, COMSAT expects Contel will abide by the terms of the merger agreement, and COMSAT will hold Contel to that obligation," Nichols wrote.

Terms of the agreement

Under the terms of the agreement, the merged firms would have retained the COMSAT name but would have been controlled by Contel's executives.

Contel's decision to abrogate the accord stemmed, in part, from a recent FCC order that requires COMSAT to refund to customers $62 million in earnings above the 12.5% rate of return allowed by the FCC.

COMSAT has vowed to fight the FCC order, saying that it was unjustified.

Contel cited three other FCC proposals as grounds for ending the merger. The cases all involve increased competition in the international satellite arena and the end of COMSAT's 20-year monopoly over international satellite communications.

One FCC proposal would have ended a requirement that half of all international calls be transmitted through the International Telecommunications Satellite Organization. COMSAT represents the U.S. in that consortium.

A second proposed action would deny COMSAT's request to represent the U.S. in the International Maritime Satellite consortium.

The third proposal would have led to increased use of fiber-optic cables — at the expense of satellites — for international traffic.

Other factors at work

Despite Contel's insistence that the FCC proposals caused it to rethink the merger, analysts believe other factors were at work.

Wall Street analyst Jay McCabe of Donaldson, Lufkin and Jenrette in New York, said flatly, "The deal is dead. Contel must have learned something about COMSAT in the course of deliberations that it didn't like, and the FCC actions gave Contel a convenient out."

According to telecommunications analyst Fritz Ringling of Gartner Group, Inc. in Stamford, Conn., the merger will probably be called off.

"Contel is getting cold feet. It realized COMSAT's business outlook is not all that great. There are many uncertainties facing COMSAT, and the $62 million refund is going to be a severe drag on earnings," Ringling said.

"COMSAT's largest customer, AT&T, recently canceled some major transponder leases, which is also going to hurt COMSAT's earnings," he said.

Failing financial health

Most observers agree that COMSAT's financial health is failing. But George Dellinger, an analyst with Washington Analysis Corp., argued that COMSAT could improve its financial picture by getting rid of unprofitable lines of business.

McCabe was not as optimistic about a turnabout for the company. "Wall Street has been waiting for COMSAT to come through with improved earnings, but it's through holding its breath. COMSAT has been very disappointing. It had a license to steal with the INTELSAT business, but it never took advantage of it."

After Contel's announcement that it wanted to pull out of the merger, COMSAT's stock declined $4, to $26 per share.

Dellinger said Contel's decision to pull out of the merger came as a shock to COMSAT. But, he added, "It's not over 'til it's over. I wouldn't rule anything out. COMSAT may just decide to hold Contel to the agreement," he continued.

"The concerns raised by Contel don't seem like the deal-smashing issues you normally associate with the cancellation of a merger.

"It looks like Contel did sloppy homework when it decided to get into the deal, and now it thinks the costs of merging with COMSAT are greater than the benefits," he said.

COMSAT sells INTELSAT satellite communications services to carriers such as AT&T, MCI Communications Corp. and RCA Corp. in the U.S.

COMSAT's common carrier business is regulated by the FCC. Its unregulated businesses include private satellite networks and the manufacture of equipment such as earth stations.

COMSAT has assets of $1.2 billion and brought in $400 million in revenue last year.

Contel also operates in regulated and nonregulated markets. Its local telephone business serves 2.3 million customers.

Contel has an Information Systems division that serves large corporations, a Business Systems division for smaller corporate clients and a Federal Systems unit, which markets equipment and services to the government.

Contel's assets are estimated at $5.4 billion. The company had revenue of more than $2.5 billion last year.

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CALENDAR

April 23-24, Washington, D.C. — Introduction to Telecommunications Systems: Technologies and Applications. Contact: *Business Communications Review*, 950 York Road, Hinsdale, Ill. 60521.

April 23-24, Washington, D.C. — Cashing in on Diversification: Winning Strategies in the New Telecommunications Marketplace. Contact: Phillips Publishing, Inc., 7811 Montrose Road, Potomac, Md. 20854.

April 23-24, New York — Networking Personal Computers. Also, April 30-May 1, Boston. Contact: New York University, School of Continuing Education, Seminar Center, 575 Madison Ave., New York, N.Y. 10022.

April 23-24, Dallas — IBM's SNA. Contact: Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 24, Lexington, Mass. — An Overview of T-1 Communications Networking. Contact: Timeplex, Inc., 400 Chestnut Ridge Road, Woodcliff Lake, N.J. 07675.

April 27-28, Atlanta — Understanding ISDN. Also, May 14-15, Honolulu. Contact: Telecommunications Research Associates, P.O. Box 1200, Newark, Ill. 60541.

April 27-May 1, Arlington, Va. — Comprehensive Course in Data Communications. Contact: McGraw-Hill Information Systems, Special Projects Conference Management Center, 445 West Main St., Wyckoff, N.J. 07481.

April 28, New York — Teleconferencing. Contact: Center for Advanced Technology in Telecommunications, Room 321, 333 Jay St., Brooklyn, N.Y. 11201.

April 28-30, Phoenix — The Fifth Annual Communications Roundup. Contact: Tele-Communications Association, Arizona Chapter, Suite 333, 3500 N. Central St., Phoenix, Ariz. 85012.

April 28-30, New York — Seminar for Incoming Call Center Managers. Also, May 5-7, Chicago. Contact: Incoming Calls Management Institute, P.O. Box 6177, Annapolis, Md. 21401.

April 29-May 1, Los Angeles — Hands-On PC Networks. Contact: Integrated Computer Systems, 5800 Hannum Avenue, P.O. Box 3614, Culver City, Calif. 90231.

April 29-May 1, Chicago — Bypass Networking: VSATs and Radio Metronets. Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

April 30-May 1, New York — Management of Telephone Costs. Contact: Office of Continuing Education, Worcester Polytechnic Institute, Worcester, Mass. 01609.

HORRELLSCOPES

BY EDWARD HORRELL

In communications today, it takes more than just good business sense to survive; it requires celestial guidance.

Leo: Controlled by the sun, the giver of life, Leo is associated with the color orange. Orange is the color of life. Orange-colored fruits provide for healthy diets; a bride wears orange blossoms for the new life she has found.

And so we find that Rolm Corp., the private branch exchange maker from California, the land of oranges, is ready to give added life to its mate, IBM. However, in this marriage, this Leo should have consulted the stars before taking the trip down the aisle with the wrong spouse.

The color blue, associated with Jupiter, is the favorite of the highly intellectual IBM. Jupiter controls the Sagittarian IBM, which, consistent with its sign, has the ability to control others and sway them toward its way of thinking.

Much has been said of the failure of the IBM/Rolm marriage. Industry pundits have bewailed the loss of Rolm's culture after the marriage. The smooth talkers at IBM have announced that Rolm will now become a division of IBM and lose its autonomy.

But IBM is learning the hard way that PBX systems are not sold like computers. Just ask AT&T. Ask Telex Computer Products, Inc. Ask Datapoint Corp. Or ask the many computer salespeople who have switched to telephone sales.

PBX sales involve a different approach and a different way of selling. Rolm practiced this well, but the IBM style is going to take much of the luster from the fast-moving orangemen and orangewomen.

But don't despair, Leo. The stars are going to align on these two. You see, the charts say that marriages with interests in technical matters are strong between Leos and Sagittarians. And as experienced Horrellscopes readers are aware, the stars never lie.

Virgo: As sticklers for method and order, Virgos are interested in making orderly and rational decisions when it comes to purchasing equipment. References are important to them. Likewise, trademarks and endorsements are scrutinized carefully.

So Virgos watched with interest as the North American Telecommunications Association (NATA) recently allowed its members to use the NATA logo on their advertising and correspondence to reflect the "high standards of NATA."

But, you might ask, what are the high standards of NATA?

Apparently, there are none. NATA has no specific standards that the vendors using its logo are required to meet to certify their products and services. To use the logo, the vendor merely has to be a dues-paying member.

Horrellscopes applauds the position of NATA in the industry, but suggests that the use of the NATA seal be reserved for those members meeting standards of performance and quality. Only then will the NATA seal of approval have any substantial meaning for users.

Gemini: Dennis Patrick, whose birth date is June 1, is the new chairman of the Federal Communications Commission. As the charts indicate, Mercury is the sun depositor for Gemini. This enhances the vocal arts: speech and singing, in opera, on screen and on television. Indeed, Patrick was previously a communications lawyer.

True to his Gemini birth, Patrick is said to have a silver tongue, which the stars indicate will be helpful in dealing with Congress. He is known as a professional.

Observers should note another Gemini trait that will bear watching: Money will not sway Gemini's decisions. That is, Patrick's efforts toward deregulation will be ideologically motivated as opposed to economically motivated. This will mean trouble with some, but over the long haul, the tireless Gemini will stay the course.

Cosmic catastrophe of the month

Observers for Horrellscopes frequently comment on the same problem: Telecommunications vendors are making poorer and poorer presentations to senior managers and executives and are embarrassing communications managers.

Sound familiar?

Horrellscopes would like to know if this has happened to you: About the time a decision is close to being made, the favored vendor pulls out some of the worst marketing skills conceivable, typically in the presence of an executive. Reports from across the country indicate that AT&T is the hands-down winner of the "executive-suite bungle" award.

Why can't more vendors learn to listen to the needs of the communications manager and try to solve these problems in a courteous, professional manner? Isn't there room for improvement in the selling skills of these companies?

We're looking for the silliest marketing blunders of the recent past. Send a note with your catastrophe to Horrellscopes, care of *Network World*, 375 Cochituate Road, Framingham, Mass. 01701. We'll print some of the good ones in future columns.

Capricorn: Characterized by hard work, Capricorns sometimes become stymied when trying to do too many things at once.

But Murata Business Systems, Inc. of Dallas is doing a lot with a device that combines voice, image and facsimile in one instrument. The ViewFax, which is manufactured by Image Data Corp. of San Antonio, Texas, sends a picture over regular telephone lines. What's unique about the ViewFax is that it will also send a facsimile image to a facsimile machine if so desired.

Horrellscopes has reported on the acceptance of image telephones before. But the introduction of the aggressive Murata into the telecommunications business offers a new world of applications for users. Security, product demos and messaging (since facsimile store and forward can't be far behind) will all be enhanced with this newest form of voice, data and image integration. Prospective users of electronic mail should look at this one closely.

Aquarius: The role of Aquarius is that of the healer. Aquarians bring consolation to the sick and weary. They bring joy where misery once reigned.

So the Aquarians of US Sprint Communications Co. of Kansas City, Mo., and The National Association of Children's Hospitals of Alexandria, Va., are going to provide free long-distance calling for children in selected hospitals around the country. The service, called Heartland, will help children more comfortably endure the trauma of intensive care by allowing them to call family and friends.

Hooray, Aquarians. Isn't it nice to read something like this for a change?

But shouldn't other companies heed this gesture? Surely some Aquarians at major banks, businesses and universities could offer off-peak long-distance traffic for projects such as this.

Horrellscopes applauds US Sprint for putting some of the right kind of love on the network. ◻

Horrell is president of Mitchell & Horrell, Inc., a telecommunications consulting firm in Memphis, Tenn.

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